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ABSTRACT

Based on the notion of "reaching out," this proceedings presents papers from the annual meeting of the Council for Programs in Technical and Scientific Communication. Papers in the proceedings are: "Southern Tech's Technical Writing Certificate" (William S. Pfeiffer); "Reach Out and Quack Someone" (Daniel R. Jones); "Reaching Out: A Rationale for University and Industrial Collaboration in Planning and Evaluating Technical Communication Programs" (Sherry Burgus Little); "Reaching Out: Designing and Teaching a Graduate-Level Course in the Theory and Research of Media Selection" (Laurie Schultz Hayes); "Reaching Out to Other Disciplines" (Muriel Zimmerman); "The Instructional Communication Workshop for Graduate Teaching Assistants in Technical Areas at the University of Missouri-Rolla" (Sam C. Geonetta); "Disciplinary Tensions: Teaching Self-Critical Reflection in an Upper-Division Technical Writing Course" (Carol Lipson); "The Metaphor of the Web: A Link between Collaborative Writing and Gender Studies" (Mary M. Lay); "Designing a Model for Collaboration" (Susan Feinberg); "The Need for Collaborative Learning Opportunities in Technical Writing" (Kenneth T. Rainey); "Reaching Out with Grant Proposals: Linking Classroom Instruction with Program Development" (Susan K. Ahern); "Electronic Documentation Comes of Age" (Henrietta Nickels Shirk); "Desktop Publishing: The Writer's Expanding Role" (Chuck Nelson); "Using Desktop Publishing in an Advanced Writing Class" (Daniel Riordan); "A Cautionary Word about Desktop Publishing" (Judith Kaufman); and "Electronic Bulletin Boards: Their Benefits to Academia" (Sherry Southard). The proceedings also includes a message from the president of CPTSC, the conference program, and results of the annual business meeting. Appendixes presenting the constitution, lists of meeting sites and dates, members, and a list of ERIC document numbers for past proceedings of the CPTSC are attached. (RS)

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The Council for Programs in Technical and Scientific Communication

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Proceedings 1987

The Council for Programs in Technical and Scientific Communication

14th Annual Meeting

University of Central Florida
Orlando, Florida

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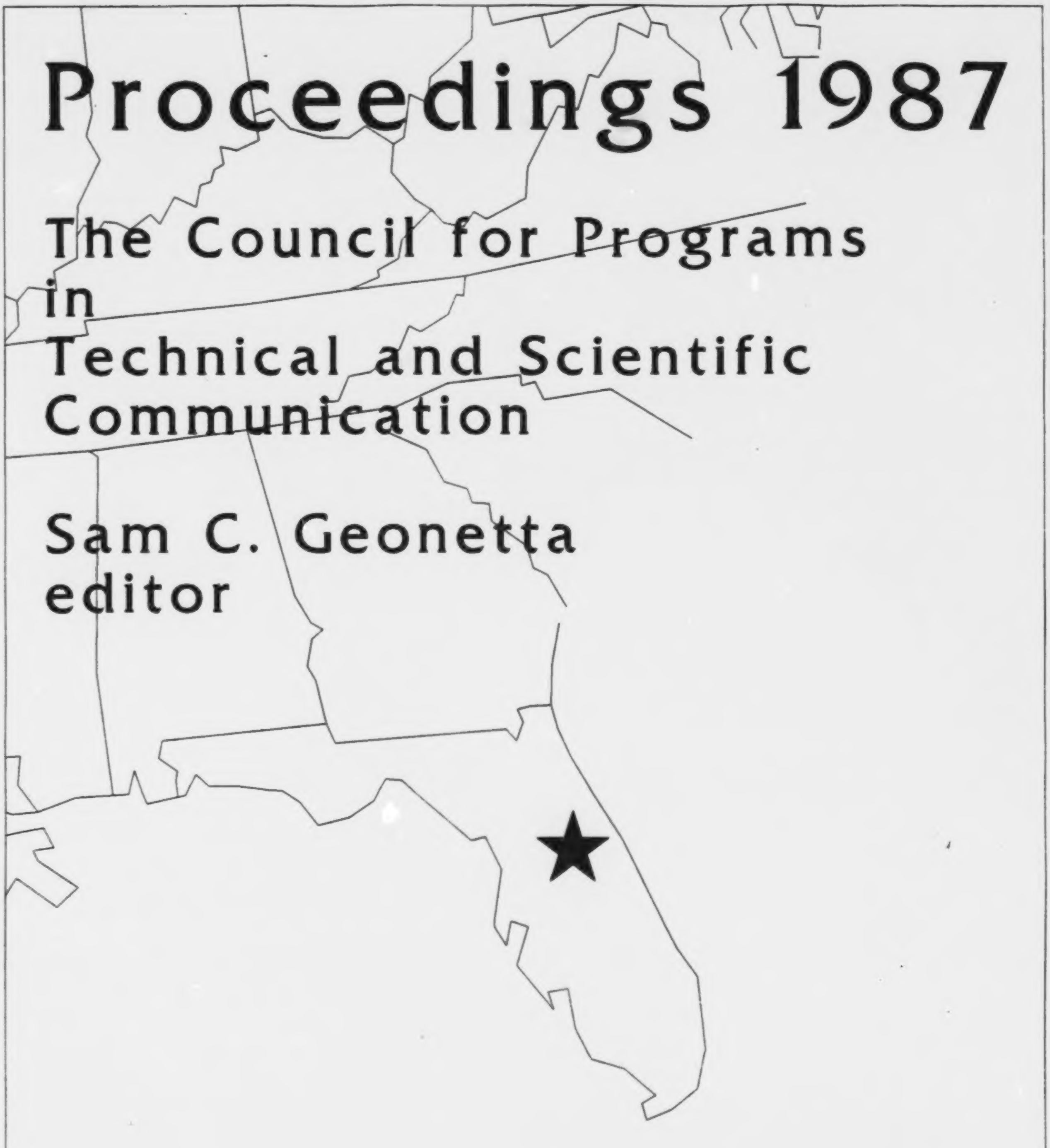
Proceedings 1987

The Council for Programs in Technical and Scientific Communication

Sam C. Geonetta
editor



Orlando, Florida
14th Annual Meeting

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From the President:

The Socio-Cultural Context of Communication, Collaborative Learning, and Nature of CPTSC

For the past fourteen years, CPTSC has continued to develop as a distinctive discourse community--a group of educators who are involved in starting, maintaining, revising, and expanding service, certificate, and degree programs in two-year, undergraduate, and graduate colleges and universities throughout the United States and Canada. Through annual meetings, proceedings, a directory of programs, correspondence, and phone calls, the members of CPTSC have participated in an ongoing dialogue on the administrative aspects of quality instruction in technical communication. Active members have served as resources not only to each other, but also to those just beginning programs. Without a formal recruiting program, we have all helped to spread the word: a conversation is in progress concerning the challenges of administrating technical writing programs; join in whenever and however you wish.

This self-perpetuating conversation has influenced the activities and the writings of nearly all the members of CPTSC (60 to 100); and almost every one of them has a story to tell about how some dialogue exchange during informal or formal portions of the annual meetings, or something read in an issue of the Proceedings sparked an idea, clarified a problem, or prompted them to see an old situation in a new, more productive way.

In other words, since the inception of CPTSC, its members have been engaging in the kind of collaborative learning, thinking, and writing that is currently being analyzed by scholars of composition, rhetoric, sociology of knowledge, and ethnography.

Only recently, however, have we become self-conscious and analytical about the way we interact as a group, about the way the group dynamics of CPTSC contribute to the administration, scholarship, and writing engaged in by its individual members. This refreshing self-awareness has prompted the organization to move in the direction of more dialogue exchange both in its meetings and in its publications.

Beginning in the fall of 1987, CPTSC will publish a bi-annual newsletter, edited by technical writing students working with Professor Gloria Jaffe at the University of Central Florida. The Fall newsletter will feature information about what took place at the last annual meeting, and will give the Executive Committee a chance to involve more members in the inner workings of CPTSC. The Spring issue will provide an opportunity for all members to communicate news, questions, advice, etc. to each other--to put new dialogues in motion.

Beginning with the fifteenth annual meeting in October, 1988, we will try moving away from a paper-presentation format, and encourage formal group conversations on topics of concern to different contingents of our membership--the service course administrators, the leaders of certificate programs, the heads of undergraduate and of graduate degree programs. While there will be some papers delivered, the emphasis will be on group work leading to consensus and to short-term project planning.

Under the guidance of immediate past president, Patrick M. Kelley, we will also be putting into operation an advisory board of past presidents, which will select groups of consultants available to CPTSC members for evaluation of their programs.

As my term of office draws to a close, I look forward to seeing a continuation of the group dynamics, the increased opportunities for dialogues and joint projects, and the invigorating self-consciousness that the Executive Committees on which I have served as Treasurer, Vice-President, and President have created and encouraged. I hope, also, that we will continue projects to provide a descriptive data-base for what is going on in our profession both on our own and in cooperation with ATTW, the NCTE Executive Committee on Technical and Scientific Communication, and the Society for Technical Communication. We need to complete our proposed profiles of technical writing teachers, students, courses, and programs, so that CPTSC can encourage and contribute to productive changes based on a firm sense of what exists and what needs to be created or revised.

As we look ahead to the next fifteen years of CPTSC and of the technical writing profession and technical writing instruction generally, we are apt to see an increasing tendency toward interdependency, ongoing "conversations," and group activities as a basis for and support of individual consciousness and individual action. In industry, group writing is becoming the norm rather than the exception; and in both scientific and humanistic disciplines, reality is being conceived not as objectively observed facts, but as the collectively created impressions on the basis of which a particular socio-cultural group agrees to accept and communicate certain value systems through its use of language.

Yes, being a member of CPTSC is being perpetually engaged in stimulating conversation. Year after year, I have observed new members discover this special quality of our group-- the sense that the minute you enter the room you are a part of a dialogue, a participant in a team, a member of a family. My parting message, therefore, is to new and potentially new members: you have always been our sister, brother, cousin: we are just waiting for you to drop by and take your place at the table.

Marilyn Schauer Samuels

Fourteenth Annual Conference

October 7,8,9, 1987
Omni International Hotel
Cherokee Room - Expo Center (adjoining the hotel)
Orlando, Florida

Host: University of Central Florida

REACHING OUT

Wednesday, October 7

7:30 P.M.	Welcome Reception and Registration in the Executive Suite at the Omni Hotel

Thursday, October 8

	Breakfast (on your own--the Omni serves a continental breakfast starting at 6:30 A.M.)
8:30 A.M.	Greetings and Introduction Gloria Jaffe, University of Central Florida Richard Astro, Provost and Vice President of Academic Affairs at the University of Central Florida Marilyn Samuels, Case Western University, President of CPTSC
9:00 A.M.	Marion K. Smith, Brigham Young University "Establishing Credibility"
9:15 A.M.	Stuart K. Smith, Brigham Young University "An English Department Reaches Out"
9:30 A.M.	William S. Pfieffer, Southern College of Technology "Southern Tech's Certification Program in Technical Writing"
9:45 A.M.	Billie Wahlstrom, Michigan Technological University "Designing Technical Communication Programs for the Year 2000"
10:00 A.M.	Discussion
10:30 A.M.	Refreshment Break
10:45 A.M.	Gloria Jaffe, University of Central Florida "A Visit to the Real World: An Exchange With IBM - Baca Raton"
11:00 A.M.	Dan Jones, University of Central Florida "Daniel in the Lions' Den: Jargon in Industry"

Thursday, October 8 (Continued)

11:15 A.M.	Sherry Little, San Diego State University "Planning and Evaluating Programs"
11:30 A.M.	Discussion
12:00 P.M.	Lunch Break
2:00 P.M.	Laurie Hayes, University of Minnesota "Responding to the Challenge of Reaching Out"
2:15 P.M.	Muriel Zimmerman, University of California "An Interdisciplinary Writing Program"
2:30 P.M.	Sam Geonetta, University of Missouri-Rolla "An Instructional Communication Program for Graduate Teaching Assistants"
2:45 P.M.	Break
3:00 P.M.	Carol Lipson, Syracuse University "A Reflective Inquiry-Based Advanced Technical Writing Program"
3:15 P.M.	Mary Lay, Clarkson College "Reaching Out: Psychology"
3:30 P.M.	Discussion
4:00 P.M.	End of Conference for Today

Friday, October 9

8:00 A.M.	Buffet Breakfast - Cherokee Room
8:30 A.M.	Marilyn Samuels "The Future of CPTSC"
8:45 A.M.	Business Meeting
9:15 A.M.	Susan Feinberg, Illinois Institute of Technology "Collaboration: A Method for Becoming a Team Player"
9:30 A.M.	Kenneth Rainey, Memphis State University "Collaborative Learning Opportunities"
9:45 A.M.	Susan Ahern, University of Houston Downtown "Collaborative Grant Proposals"
10:00 A.M.	Discussion
10:15 A.M.	Break
10:30 A.M.	Henrietta Shirk, Northeastern University "Electronic Documentation Comes of Age"

Friday, October 9 (Continued)

10:45 A.M.	Chuck Nelson, Youngstown State University "Design Guidelines"
11:00 A.M.	Dan Riordan "Using Desktop Publishing in an Advanced Writing Class"
2:00 P.M.	Judith Kaufman, Eastern Washington University "A Cautionary Word About Desktom Publishing"
11:30 A.M.	Discussion
12:00 P.M.	Lunch (on your own)
1:30 P.M.	Sherry Southard, Oklahoma State University "Guidelines for Using STC's Electronic Bulletin Board in Internships"
1:45 P.M.	James P. Zappen, Rensselaer Polytechnic Institute "Computer Education in a Technical Communication Program"
2:15 P.M.	William Coggin, Bowling Green State University "Industry Comes to School"
2:30 P.M.	Cindy Carrithers, Kirchman Corporation "A Look at Industry and Its Relationship to a Technical Communication Program"
3:00 P.M.	Discussion
3:15 P.M.	Until Next Year

SOUTHERN TECH'S TECHNICAL WRITING CERTIFICATE

WILLIAM S. PFEIFFER
PROFESSOR OF ENGLISH
DIRECTOR OF TECHNICAL COMMUNICATION
SOUTHERN COLLEGE OF TECHNOLOGY

In spring 1986, Southern College of Technology began offering the Technical Writing Certificate. This program is co-sponsored by the Humanities and Social Sciences Department and the Office of Continuing Education. My comments this morning will show how one college, with limited resources, reached out to the business and industrial community to satisfy an obvious need. I'll focus briefly on these topics:

* Why we began the Certificate program,
* How the sponsoring departments split tasks,
* What problems we encountered, and
* Where we plan to go from here.

Why We Began the Certificate Program

We started the Certificate program for four reasons: (1) there were no similar programs in the area, (2) we had students knocking at our door, (3) there was a technical communication faculty in place, and (4) we had already made the commitment to develop technical communication courses for an undergraduate minor--and some of these same courses could be used in the Certificate program.

Reason one--our area lacked such programs. Some of you may recognize this map from the joint STC/CPTSC publication: Academic Programs in Technical Communication, 3rd edition, 1985 (see Figure 1). It shows the locations of 56 institutions with technical communication programs. Among

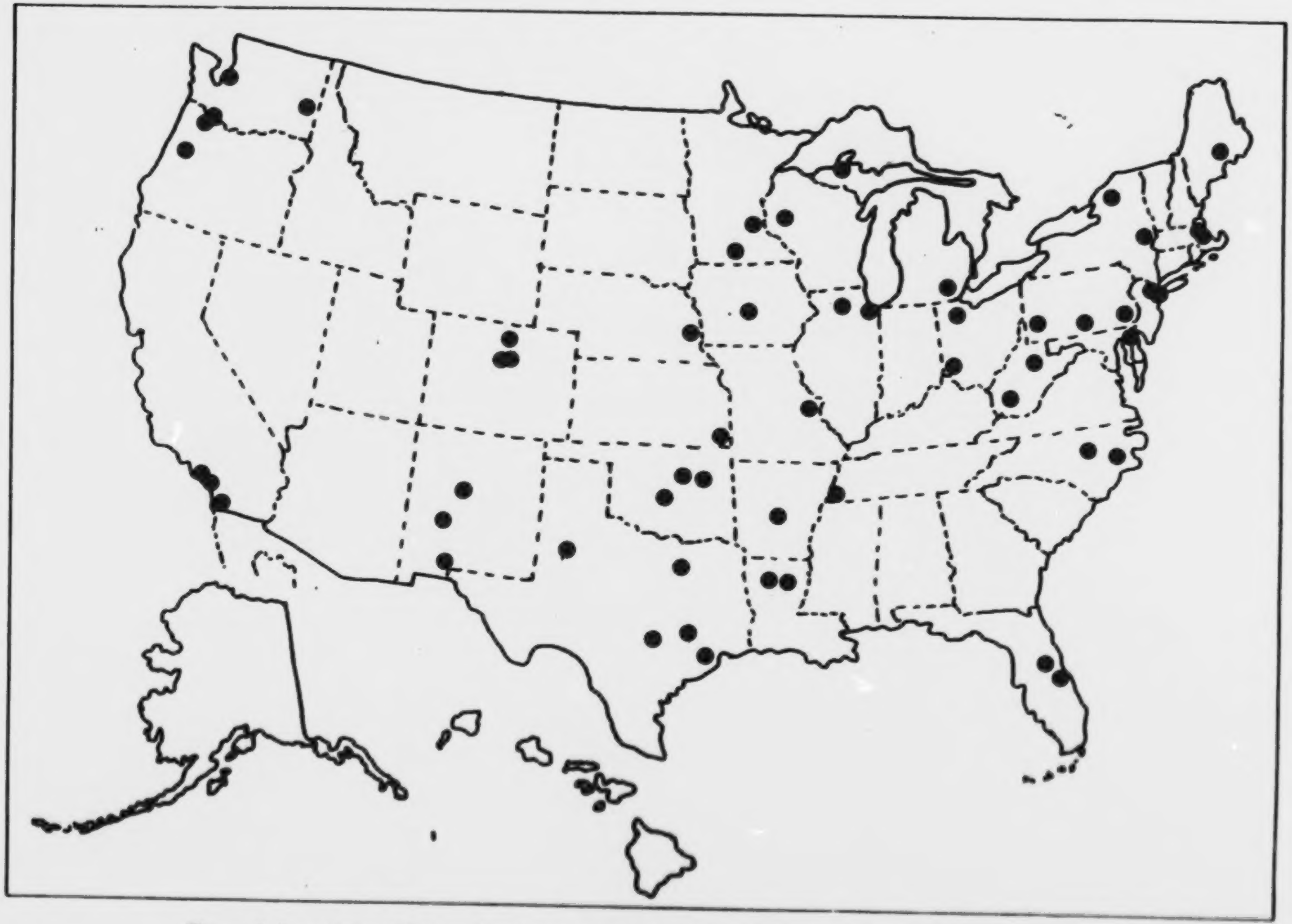

Figure 1. Locations of 56 Institutions with Academic Programs in Technical Communication

From the STC/CPTSC
Academic Programs in Technical Communication
3rd edition, 1985

the large gaps on this map is the one that interested us most, metropolitan Atlanta, one of the fastest growing technology centers in the country. There were no active programs in Atlanta or, for that matter, in all of Georgia. And we knew that if we didn't start a program, another college would soon fill the void.

Reason two--student demand appeared to be high. After I became director of technical communication in 1984, I received many calls from prospective students who wondered what we offered beyond a service course in technical writing. It became clear that there was a real demand out there among two groups, with quite different backgrounds than the typical Southern Tech engineering technology students:

1. People who wanted to move into the field of technical communication from related fields and who had varied undergraduate degrees, and
2. Professionals already in the field who wanted further training, along with some sort of academic credential to help with advancement in their firms.

This audience might resemble that which many of you draw upon for your programs.

Reason three--we already had a technical communication faculty with diverse specialties. Once an appendage of Georgia Tech, Southern Tech cut the cord eight years ago and became a separate unit in the University System of Georgia. Traditionally, we have offered a fairly narrow range of programs--mostly B.S. degrees in engineering technology and computer science, with the recent addition of a Master of Science in Technical Management degree. Because all baccalaureate students must take business and technical communication, we've regularly hired professors with this teaching specialty and with related industry experience. So we had a good start at a faculty.

Reason four--some of the courses for another program could double for the Certificate. The other program is our Minor in Technical Communication, for regular Southern Tech students. We surmised that if we could put both Minor and Certificate students in some of the classes, we would have a better chance of meeting the required enrollment. That would solve the practical problem of filling classes. But we also believed that both groups of students would benefit from rubbing shoulders in the classroom--the Minor students with their technical academic background and the Certificate students, many with technical communication experience in industry.

How the Two Sponsoring Departments Split Tasks

The idea for the Technical Writing Certificate arose in discussions among members of my home department, Humanities and Social Sciences, and the director of the Office of Continuing Education. The director viewed the Certificate as an opportunity to start an "outreach program" to the community, and also as a chance to gain some visibility for continuing education on campus.

With different motivations but the same goal, the two departments forged an agreement. We, on the technical communication faculty, taught the courses and established the criteria for evaluating Certificate students; the Office of Continuing Education handled admissions and other administrative details.

Some responsibilities were jointly held, such as public relations. We worked together to get the message out with brochures, mailers, and advertisements in local papers. As well, some of my colleagues and I wrote short articles for an education column in our local STC newsletter.

The large Atlanta chapter has an active membership quite interested in further training. So our columns highlighting courses and instructors were printed shortly before Certificate registration.

The Office of Continuing Education and our department also worked together on curriculum, though the faculty of course had the final word. These five courses were chosen:

1. Proposals
2. Technical Editing
3. Technical Journalism
4. Technical Manuals
5. Technical Oral Presentations

We decided that to earn the Certificate, each student must complete only four of the five courses. This arrangement was based more on pragmatics than pedagogy. The Office of Continuing Education wanted to be certain that someone could earn the Certificate in a calendar year, taking one night course a week each quarter. And those of us handling course scheduling wanted the added flexibility of not having to offer all five classes in sequence.

What Problems We Encountered

For the most part, the marriage of convenience between continuing education representatives and the technical communication faculty has been solid. For over a year we've offered usually two courses each quarter, one at night once a week and the other at noon three times a week. Both Certificate and Minor students enroll in each. About forty-five students have begun the Certificate program, usually taking one course a quarter. By the end of this term, we will have given about ten certificates.

But there have been some problems. Most important, the Office of Continuing Education has become a bit disenchanted about administering the program, for this reason. Certificate students are not "normal" continuing education students in that they are officially auditing. Audit status means that our academic department can secure state funding for the students. But this status also requires that the continuing education staff must feed Certificate students' applications through the regular (and more bureaucratic) admissions process, rather than the usual continuing education admissions process with its quick turn-around. In short, there's a paperwork problem we need to solve.

Another problem has been scheduling. Since some students' work schedules force them to miss a quarter periodically, they can't pick up the course they need for several terms. With only one or two Certificate offerings each quarter, it's impossible to satisfy everyone's needs for courses. A particular course may not come around again for several quarters.

Finally, I've had a complaint or two from students in the Technical Communication Minor that they've felt a bit out of place, even intimidated, among the Certificate students--many of whom bring significant work experience in technical communication to bear on class discussions. Yet Minor students have done admirably in the classes, and most students from both groups have commented on the benefits derived from the mix of Certificate and Minor students.

Where We Plan to Go From Here

From the outset, we hoped that the Technical Writing Certificate would serve as a springboard for a graduate program in technical communication. That is, it could help us locate and define the needs of an audience interested in graduate work. Also, we hoped the Certificate program would show our colleagues on the technical faculty that there's a future for advanced technical communication programs at Southern Tech.

In fact, the Certificate's modest but clear success helped provide support for a Master of Science in Technical Communication program proposed recently. We expect this graduate program to begin during the fall 1988 term.

As much as my colleagues and I look forward to the new master's program, we also hope to keep the Technical Writing Certificate alive at Southern Tech. First, there are students who don't want or need a graduate degree but who do need further training in technical communication. For them, the Certificate makes good sense. Second, the brevity of the Certificate program allows participants to realize fairly immediate results in the workplace. In response to a survey in my Proposals class this summer, for example, one student wrote:

> "I plan to frame it [the Certificate] and put it out in plain view in my office. I'm proud of it! It is my statement that I produce quality work and am willing to do whatever is required to improve and stay on top of the industry. . . . The Certificate work has already had a tangible effect on my career."

Such comments help convince us that the Technical Writing Certificate program will continue to satisfy an important need in the Atlanta community.

REACH OUT AND QUACK SOMEONE

DANIEL R. JONES
ASSOCIATE PROFESSOR
UNIVERSITY OF CENTRAL FLORIDA

Whenever I hear or read jargon, I recall a scene which appears early in Orwell's Nineteen Eighty-Four. Winston is eating lunch with Syme in the cafeteria of the Ministry of Truth. Orwell writes: "From the table at Winston's left, a little behind his back, someone was talking rapidly and continuously, a harsh gabble almost like the quacking of a duck, which pierced the general uproar of the room."[1] Winston blocks this noise out temporarily and listens to Syme discuss his work on the Eleventh Edition, the definitive edition of Newspeak, which will be completed in 2050. Syme tells Winston,

> The Revolution will be complete when the language is perfect. Newspeak is Ingsoc and Ingsoc is Newspeak. . . . Has it ever occured to you, Winston, that by the year 2050, at the very latest, not a single human being will be alive who could understand such a conversation as we are having now? (pp.46-47)

Syme also criticizes Winston for "still thinking in Oldspeak" (p.46). He tells Winston, "In your heart you'd prefer to stick to Oldspeak, with all its vagueness and its useless shades of meaning. You don't grasp the beauty of the destruction of words" (p.46).

Later, after finishing his bread and cheese, Winston hears the "strident voice" to his left "still talking remorselessly away" (p.47). Orwell tells us that

> What was slightly horrible was that from the stream of sound that poured out of his mouth, it was almost impossible to distinguish a single word. . . . it was just a noise, a quack-quack-quacking. . . . Winston had a curious feeling that this was not a real human being but some kind of dummy. It was not the man's brain that was speaking; it was his larynx. The stuff that was coming out of him consisted of words but it was not speech in the true sense: it was a noise uttered in unconsciousness, like the quacking of a duck. (p.48)

Of course, everyone knows the ending of Orwell's Nineteen Eighty-Four. We are told that Winston "had won the victory over himself. He loved Big Brother" (p.245). Implicit in this ending is that Winston also finally loves Newspeak, not Oldspeak, and that he will eventually master the art of quack-quack-quacking.

Let's imagine a sequel to Nineteen Eighty-Four. Let's call it Nineteen Eighty-Seven. Our hero Winston has been transferred to the Documentation Department of the Ministry of Truth where he now works as a technical writer. He pulls out his speakwrite, blows the dust from the mouthpiece, puts on his spectacles, and begins quacking away. Every other word is *utilize*, *prioritize*, *feedback*, *interface*, *input*, *output*, *thruput*, *impacted*, *decisioned*, *statused*, *optimize*, *maximize*, *finalize*, *trending*, and so on. He writes, "Please *prioritize* these tasks and give me your *feedback*, so we can *interface* with comrade Parsons on Tuesday."

When not *quacking* himself, Smith spends much of his time collecting examples of *quacking* from others. He would enjoy the examples published in several recent issues of *Simply Stated*. One flight attendant said to another during a recent flight--"Have you *beveraged* this aisle yet?"; A headline from *The Washington Post* announced, "Spinks *decisions* Holmes."[2] An obituary read, "Franklin will be *funeralized* on Monday"; some San Francisco residents complained of the *Manhattan-ization* of their city."[3] Also, *Simply Stated* offers some classic examples from academia: A faculty newsletter related that "similar units *can office* together"; "A colleague, speaking of an upcoming meeting, asked, 'Shall we *calendar* it now?'"[4]

Just a couple of days of working in industry (or attending committee meetings on campus) will show how fond we are of such language. As one employee at IBM recently told me, "We can no longer tell what is and what is not jargon."

I believe that even Orwell could not imagine how much Winston enjoys his new job. I believe also that Orwell could not envision how many other Winstons there would be in industry and academia today doggedly pursuing the art of quacking. Indeed, quacking is so pervasive, so natural, so loved, that it's no longer pretentious (pretentiousness being one of the key features of jargon, according to Kenneth Hudson in The Jargon of the Professions[5]). Let's recognize that the real pretentious language of industry (and indeed of academia) is anything stated clearly and concisely.

Think about it for a minute. Isn't it pretentious (remember, pretentious means "making usually unjustified or excessive claims") to assume that anyone would find the following sentence in user documentation: "Read each field description carefully before you make any entries." Where will you actually find such a sentence? You will more likely read something such as: "The end-user should obtain optimum utilization from these field parameters before thruputting to the successive user-interface." This is the kind of sentence we want, we cherish, we demand. Winston Smith would be proud of it. In fact, we often want something twice as wordy, but often our department budgets are not adequate to pay for the extra pages.

One of the best ways we can "reach out" to industry is to accept the reality of documentation quality. We need to recognize that the new jargon of technical writing is the well-chosen word, the clear sentence, the concise paragraph, the readable section, the usable manual. In short, quacking is not the noise Winston Smith originally finds it to be;

quacking is beautiful. Winston Smith in my sequel Nineteen Eighty-Seven knows it, and we know it.

Are there any valid arguments against making any noun into a verb, any clear language of today into the quacking of tomorrow? We used to object to the words contact, telephone, and table as verbs. Who objects now? Does anyone still object to itemize, personalize, or synthesize? We've witnessed a transition from chairman to chairperson to chair. Who objects to chair? John Ciardi reminds us that no one can tell what a word will mean in the future: "Only a fool would attempt to predict such changes. The only rule I have been able to evolve is: Language does what it does because it does it."[6]

Also, would anyone deny the positive value of euphemisms? Who doesn't recognize the decency of senior citizens for old people, sanitation engineer for garbageman, rodent operator for ratcatcher, and negative patient outcome for death. I don't know about you, but I would feel a lot better about paying a hospital bill if I saw the words "this surgery was necessary to minimize the chances of negative patient outcome" on the bill. I also feel much more comfortable in a world of peacekeepers instead of MX missiles, Operation sunshine instead of hydrogren bomb, revenue enhancement instead of tax increase. When I listen to the news, I don't want to hear about an airplane crash but a controlled flight into terrain, not civilian casualties but collateral damage, not withdrawal of our forces but redeployment.

Hugh Rawson points out some important advantages in using euphemisms. He tells us that "Bad words are not so bad when abbreviated," "Abstractions are not objectionable," "Indirection is better than direction," and "Understatement reduces risk."[7] Neil Postman says that euphemisms help us to generate "new and useful ways of perceiving things."[8] Let's face it. Without euphemisms I wouldn't be able to talk to most of the people in my department.

I know the old arguments against quacking: 1) clear language means clear thinking[9]; 2) use language appropriate to your audience (if it can be stated in simpler terms, restate it)[10]; 3) some nouns changed into verbs "often sound silly"[11]; 4) words can't mean whatever we want them to mean[12]; 5) quacking is done mainly by intellectually inferior people.[13] Do you see any evidence that anyone takes any of these arguments seriously?

Advantages of Reaching Out

What are the advantages in suggesting that clear language is pretentious, in accepting quacking as beautiful?

First, we would boost our image and morale in this profession of technical writing. We often complain that we are treated like second-class citizens, mere language janitors of the design and marketing process. Well, what do you expect? We don't quack as well as other professionals. Most engineers, programmers, managers, graphic artists, accountants, and lawyers I know are quite proud of their ability to use the lastest buzz words and to obscure the simplest memo. The only way we're going to earn their respect is to show that we can quack with the best of them.

As we spruce up our image, just think of all the new words, phrases, and sentences we can create. At present, we have an assortment of names for quacking, including: bureaucratese, computerese, bafflegab, governmentese, academese, officialese, pentagonese, engineerese, scientese, Martinese, tech speak, newspeak, doublespeak, duck speak, bureauquack, sciench, and IBMese. (You can add the suffix "ese" to any company or organization. What about CPTSCese, for example?)

Second, accepting quacking and frowning on clarity allows us to achieve the pompous language that industry increasingly (if not exponentially) demands. Those of you who have worked on proposals for government contracts know that government readers don't want clear, simple language. Indeed, such a proposal cannot seriously compete against a proposal that cannot be understood.

Third, quacking actually unifies rather than separates. Done well, quacking brings the expert and layperson together. Edward Tenner, in Tech Speak: Or How To Talk High Tech (1986), helps us to become producers of "texpressions," such gems as carborhydrate-laminated bovine protein wafer for hamburger, accreted crystalline anthropoid homologue for snow man, and canine seclusion habitat for dog house.[14] Tenner argues that tech speak "enlightens by revealing the wonder and complexity of things we take for granted. It liberates by lifting the barrier between expert and layperson--an obstacle that plain language movements have never been able to budge" (p.7).

Fourth, by openly embracing quacking we would achieve a closer rapport with literature and creative writing faculty. Many technical writing faculty complain about problems with other faculty in their departments. Non-technical writing faculty don't understand us. Either they believe we don't belong on campus at all or they believe we belong in the College of Engineering. They believe we have been corrupted by our contacts with the business world, and we don't have (or never had) the ability to appreciate the ambiguities of great literature. We are too proccupied with headings, graphics, audience analysis, science, technology, and computers.

By recognizing clear language as pretentious and quacking as legitimate, we would be granting technical writing an ambiguity parallel to the ambiguity of fiction, drama, and poetry. Just think of the articles and books we could write interpreting the classics of quacking. For example, tomes (the preferred format for quacking criticism) could be written on John Ciardi's definition of gobbledygook:

> Linguistic utilizations intermediate to finalized specification and rhetorically structured to maximalize optionalization of alternatives while

preserving deniability interim-wise.[15]

James Thurber once defined jargon as language which is "Full of sound and fury dignifying nothing." Just think of the possible existentialist (or even post-deconstructionist) interpretations of such a statement.

Fifth, all of us could supplement our incomes through teaching seminars discussing why some people use clear language, the effects of using clear language, and ways to decrease its use. Allow me to offer a few tips for those of you thinking about offering such seminars.

For a seminar on why people use clear language, cover the following points:

Ignorance--some people still don't know that technical writing should be unreadable and obscure.

Laziness--some people don't want to devote the time and energy necessary to write obscurely. (Pascal didn't know what he was talking about when he said, "I have made this letter longer than usual, because I lack the time to make it short.")

Cliquishness--some people like the sense of belonging that they believe comes from being able to understand each other. They like being a member of a small, close-knit group.

Obscurantism--some people don't know the delights of using pompous, wordy, or abstract language.

Self-importance--some people use clear language to make others think they know what they are talking about.

For a seminar on effects of using clear language, cover such topics as:

Errors--people are so used to reading mangled sentences that when they read a clear sentence they are more likely to make mistakes. Good technical communication is like legal writing. Over the years we have developed a good understanding of what this or that example of quacking means. Unlike lawyers and other professionals, however, we haven't secretly shared these meanings with each other.

Loss in productivity, costs, effectiveness--no one can deny that it takes a lot more time to write clearly. This time invariably decreases an employee's productivity which in turn costs the company more money leading to greater inefficiency.

Ethics--we know that technical communication can be deceptive. Clear technical language seems more designed to be deceptive. I think any writer who writes anything clearly is obviously hiding something.

Dehumanization--Tenner tells us that in politics, simple, direct words used by dictators, for example, are often a greater problem than the obscure language of jargon. Tenner argues that "Giving people new phrases and metaphors to describe their feelings seems to make them feel better" (p.106). Also in politics "jargon is the mark of the aspiring underdog" (p.107). The ruling classes can speak directly; "Others need slogans and euphemisms" (p.107).

For a seminar on how to decrease our use of clear language, be sure to cover these topics:

Confuse clear language with euphemism, gobbledygook, jargon, technical language, shop talk, cant, argot, lingo, and so on.

Avoid learning anything about your audience.

Use long words wherever possible (and use them inappropriately).

Use abstract words.

Use unnecessary modifiers and qualifiers.

Create wordiness.

Avoid common sense.

Don't read anything, think about anything, or listen to anyone.

Conclusion

Hudson suggests, "The only way of keeping jargon under control is to make sure that people of the highest intelligence receive a broadly based education . . ." (p.21). What a naive view. We all know that no one receives a broadly based education anymore. (If you don't believe me, read Allan Bloom's The Closing of the American Mind and Eric Hirsch's Cultural Literacy, two scathing attacks on higher education.[16]) I believe Mark Twain gives us better advice than Hudson. He tells us that "Writing is easy. All you have to do is cross out the wrong words." What I am suggesting is that quacking is easy. All you have to do is cross out the clear words.

NOTES

[1] George Orwell, Nineteen Eighty-Four (New York: New American Library, 1987), p.45.

[2] "Verbizations Update," Simply Stated, No.62, January 1986, pp.3-4.

[3] "Don't Commit Verbicide," Simply Stated, No.65, April 1986, pp.1-2.

[4] "Don't Commit Verbicide," pp.1-2.

[5] The Jargon of the Professions (London: Macmillan 1978), p.3.

[6] A Second Browser's Dictionary and Native's Guide to the Unknown American Language (New York: Harper and Row, 1983), p.xiv.

[7] A Dictionary of Euphemisms and Other Doubletalk (New York: Crown Publishers, 1981), pp.8-10.

[8] "Euphemism," Language Awareness, ed. Paul Eschholz et al (New York: St. Martin's Press, 1986), p.344.

[9] Orwell, "Politics and the English Language," in The Collected Essays, Journalism and Letters of George Orwell, eds. Sonia Orwell and Ian Angus (New York: Harcourt Brace Jovanovich, 1968), pp.127-40.

[10] Hudson, p.4.

[11] "Don't Commit Verbicide," p.1.

[12] See Humpty Dumpty's exchange with Alice: Humpty Dumpty says, "When I use a word . . . it means just what I choose it to mean--neither more nor less." Alice responds,

"The question is . . . whether you can make words mean different things" (p.166). Lewis Carroll, Through the Looking Glass and What Alice Found There in The Illustrated Lewis Carroll, ed. Roy Gasson (Dorset: New Orchard Editions, 1978).

[13] Hudson, p.3.

[14] Tech Speak (New York: Crown Publishers, 1986), pp.10, 29, 37, and 31.

[15] A Browser's Dictionary (New York: Harper and Row, 1980), p.154.

[16] Bloom, The Closing of the American Mind: How Higher Education Has Failed Democracy and Impoverished the Souls of Today's Students (New York: Simon and Schuster, 1987), and Hirsch, Cultural Literacy: What Every American Needs to Know (Boston: Houghton Mifflin Company, 1987).

REACHING OUT: A RATIONALE FOR UNIVERSITY AND INDUSTRIAL COLLABORATION IN PLANNING AND EVALUATING TECHNICAL COMMUNICATION PROGRAMS

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Most of us used university and industrial collaborative activities in our academic technical communication programs because of a gut feeling that it's only common sense that technical communication programs should have a foot in both the academic world and the "real" world, terms that establish a dichotomy that is most unfortunate for education. There is a real tension, however, in some academic communities between educational institutions seen as a separate entity on the one hand and, on the other hand, the industrial component of society. Or, indeed, in its most exaggerated form between education and the community it serves, especially if the word "serves" here implies that the university, usually with a capital "U," should be responsive to the needs of the community. As an example of what I mean, let me relate what occurred in a departmental meeting discussing the use of an advisory committee for getting advice for curricular change.

A list of advisory committee members was attached to a summary of recommended changes to the technical writing program and the committee's support for such changes was being presented as an additional reason for the changes being proposed. To this argument, one faculty member observed, "Who are these people to tell us what to do in our programs?" Further, it was asked, after reading the names of the companies that the advisory committee members represented, "Here's someone from Litton. What is Litton? And why should it be telling us what to do?"

I realized at that time that "gut feelings" and "common sense" are not adequate theoretical foundations for an aspect of education that I feel is essential. It is necessary to articulate the significance of university and industry collaboration more fully, providing guiding theories and principles for this part of a student's education. I became interested in exploring the extent of such collaborative activities in the planning and evaluation of technical communication programs in the United States. Most teachers of technical communication know and use many strategies for getting the real world into the technical writing classroom which depend on university and industry collaboration. To name a few I've read about and most of us have probably used:

* field trips [1,2]
* industrial representatives as guest speakers [3]
* real world writing assignments, either designed by instructors [4,5] or actual technical documents from industry that are written, revised, and edited by students [1,6]
* simulated working environments in the classroom [7,8]
* computerized scenarios of real world situations[9]
* student interviews of professionals about the types of writing they do and the communication needed [10]
* internships for teachers [11,12,13]
* surveys of writing at work, either graduates of particular programs [14,15,16] or practitioners in the field [17,18,19,20,21]
* videotapes of real world activities shown in classrooms [22]
* external industrial evaluators of student work [1,23]
* joint planning by industry and education of courses and programs [24,25]

In this paper I would like to report the results of a study of two strategies of industry and university collaboration: the use of the advisory committee and student internships. In addition to summarizing the quantitative information I have collected empirically, however, I also want to link these strategies to the theoretical principles for experiential learning, especially to David Kolb's experiential learning cycle, to articulate the rationale for these activities in academic programs in technical communication. First, I will report on the results of the survey.

RESULTS OF THE STUDY

Surveys were sent to students who have participated in internships, to industrial coordinators of interns, to advisory committee members, and to academic coordinators of such experiences. They were asked to describe their experiences. Their answers provide a profile of programs, descriptions of internship programs and advisory committees, judgments about the value of such experiential learning, and problems encountered by all those involved in developing, establishing, maintaining, and evaluating such experiences. Provided also is a picture of wide diversity among such programs.

One result, suggested by the lack of literature on the subject, is that the advisory committee is not a strategy used by many programs. Almost two thirds (69)% of the respondents reported that they do not use advisory committees. However, hands-on experience through internships is a viable part of a large number of technical communication programs, with 75% of the programs reporting that they have internships. Slightly less than one third of the programs, 30%, reported having both advisory committees and internships, with 21% reporting that they have neither advisory committees nor internships.

The Use of Advisory Committees

Not only is the advisory committee not used as much as internships, but also if it is used it is a recent development. Also all advisory committee members (90%) reported that they had been involved with the committee for less than 5 years with over half (60%) of the program directors reporting that they had used advisory committees for less than four years. One would expect that the composition of such committees would more closely reflect those members of the industrial community connected with the profession of technical communication, but instructors, school administrators, and local business people seem to outnumber professional technical writers. Both the members and the program directors reported that no students are members of the committee. Most committees are small, from 6 to 10 members, and all responding committee members were in total agreement as to why they serve--to provide input and represent industry as a result of a sense of civic, educational, and professional responsibility. Program directors were also in total agreement when responding to the question why they used advisory committees: they wanted to know what knowledge and skills students must possess to get hired and function well so that their programs will provide these skills.

Program directors and committee members did not agree when asked what the committee's greatest contribution was. Program directors reported, as would be expected, that the greatest effect is in advising--helping with designing, evaluating, and updating programs, while their potential as more tangible supporters of fledgling programs in the areas of funding and equipment donations is not being exploited. Committee members, on the other hand, reported that their greatest effect was in providing internships for students.

Although both program directors and committee members mentioned some problem directors and committee members mentioned some problems and disadvantages, such as it was time consuming and meetings were hard to schedule, no one disadvantage received more responses than another. It seems clear from the results of the study that the advantages of this strategy of collaboration outweigh the disadvantages of its use. When asked if their expectations had changed as a result of the advisory committee experience, some program directors reported that they had received much more than they expected and advisory committee members reported that they enjoyed updating their own knowledge, some even reporting that they experienced a feeling of parental pride for "their" programs.

Some tension was revealed in some of the responses, however. A few program directors complained that some of their committee members were too oriented to specific needs of their own areas, a comment some of the members noted as well. Committee members also responded that they learned that education is not as adaptable to the real world as it could or should be, although these responses were made by a small number of respondents.

The Use of Internships

Internship programs are small and highly individualistic. Some interns are paid; some are not. Some internships are required; some are not. No set pattern seems to exist for how many hours an intern spends on the job or how many units of academic credit a student earns. Almost all programs, however, award academic credit for the experience (95%).

When the answers from the three different viewpoints—the intern, the industrial coordinator, and the program director--to the same questions were compared, some interesting disagreements emerged. Program directors reported that the person who initiates the program varies: sometimes it is the director, sometimes the student, sometimes the industrial coordinator. Interns and supervisors reported, however, that most of the time the program director initiates the internship. Planning the tasks the intern performs is seen from the program directors' prespectives as a cooperative venture performed by all three participants; however, over a third of the interns (39%) reported it as being a venture between the supervisor and the intern only; supervisors reported that they did it by themselves (33%) or that the student did it alone (39%).

Responses were equally divided when asked whether a formal written agreement or an informal oral agreement were used, but all three types of respondents agreed that internships were undertaken after a thorough academic preparation, with the most useful preparation, and most required, being identified as technical writing courses.

In describing the actual internship experience, interns and industrial coordinators generally agreed that students spent most of their time working on articles for publication or manuals. Interns reported spending more time doing research (from 88% to 50% of their time) than industrial coordinators reported the interns did, but both agree about the time spent editing (from 88% to 25% of their time) and writing (75% to 50% of their time). Some internships were reported as not including any editing tasks; however, this task was not further broken down into editing one's own work and editing the work of another, which might have made a difference in how students responded.

Responding to the questions of monitoring and evaluating the internship resulted in some diverse responses also. Though program directors report that evaluating and monitoring do not pose the most difficult problems in internship programs, there seems to be no standard pattern for visiting the intern on the job, keeping contact with the intern and industrial supervisor during the internship, or determining what activities the intern performs should be evaluated. Although there is some agreement among program directors about the cooperative nature of the evaluation between industrial coordinators and faculty advisors, how much weight that is given to the industrial supervisor's evaluation in the final grade differs greatly among program directors. The wide descrepancy reported between the many activities the intern performs (such as final reports, progress reports, portfolios, and oral presentations) and how important these activities are in the final evaluation of the student in awarding academic credit highlights the lack of agreement in evaluating the internship experience from the perspective of program directors.

When interns and supervisors are asked similar questions about monitoring and internships, an even wider discrepancy among the answers emerges. About half of the supervisors reported that the faculty advisor visited once or twice during the internship as did the interns; however, the interns also reported that they kept close contact with the advisor throughout the internship. None of the supervisors admitted that their student interns were not closely monitored by them, but 23% of the interns reported being left pretty much to their own devices.

In evaluation occurred a record of totally different perceptions of each person's role in the internship experience. Over half of the program directors reported that both the faculty advisor and the supervisor evaluated the student, and most of the program directors responded that the supervisor's evaluation of the intern counted between 50 to 75% of the grade. Interns however perceived their grade as being more influenced by the advisor than the industrial supervisor, with 21% reporting that their grade was assigned by the faculty advisor alone. And the supervisors reported, like the program directors, that it was a cooperative evaluation by both faculty advisor and supervisor to determine a student's final grade; however they believed their evaluations counted from 75 to 100% of the grade, with none of them reporting that the faculty advisor assigned the grade alone.

When asked about problems, supervisors reported that they had trouble finding time to direct internships and space for the interns; interns complained both of doing busy work rather than "real" assignments and being too busy, having too little structure in their activities, and enjoying little "creative" freedom. Program directors perceived their greatest problems as locating positions and screening students. Despite problems, however, 95% of the industrial supervisors said they would do it again and 92% of the interns reported that the experience was very or extremely worthwhile. All interns reported that to be involved in the "real" world was the most rewarding part of the internship, with one intern writing ecstatically, "I got a job!" and another proclaiming it as "the best thing to have happened to me."

THE IMPORTANCE OF EXPERIENTIAL LEARNING

Despite the wide diversity in the way the internship is perceived by the participants and the lack of agreement about its structure and evaluation, the internship is a common experience in a student's education in technical communication, and although advisory committees are not so common, when they are used they are enthusiastically supported.

Which leads me to the second part of my paper, the relationship of such industry and university collaboration to David Kolb's experiential learning cycle. Kolb, as well as other experiential learning theorists, sees experiential learning as gaining widespread use and acceptance (26, p. 3), a tendency substantiated by my study of the use of experential learning strategies in technical communication programs. People learn from experience, and that knowledge can be reliably monitored and evaluated so that students can earn college credit, although the results of my study indicate there is some disagreement about methodology in accomplishing this reliable assessment. In spite of the use and acceptance noted by Kolb, experiential learning does have its critics who see it as nonacademic, too involved in pragmatic techniques, lacking academic substance and rigor. It is to some academics an example of the infringement of vocationalism or the antiintellecutual technological society upon the purer domains of the university.

However, Kolb maintains, experiential learning theory offers something of much more substance. "It offers the foundation to education and learning as a lifelong process that is soundly based in intellectual traditions of social psychology, philosophy, and cognitive psychology" (p. 3-4). His experiential learning model (Figure 1) shows "a framework for examining and strengthening the critical linkages among education, work, and personal development..." by providing"... a system of competencies for describing job demands and corresponding educational objectives...[it] emphasizes the critical linkages that can be developed between classroom and the 'real world.' It pictures the workplace as a learning environment that can enhance and supplement formal education and can foster personal development through meaningful work and career-development opportunities. And it stresses the role of formal education in lifelong learning and the development of individuals to their full potential as citizens, family members, and human beings" (p. 4).

Kolb's learning cycle model, influenced by John Dewey, Kurt Lewin, Jean Piaget, such therapeutic psychologists as Carl Jung, the humanistic traditions of Carl Rogers, Fritz Perls's gestalt therapy, and the self-actualization psychology of Abraham Maslow, shows an unending learning

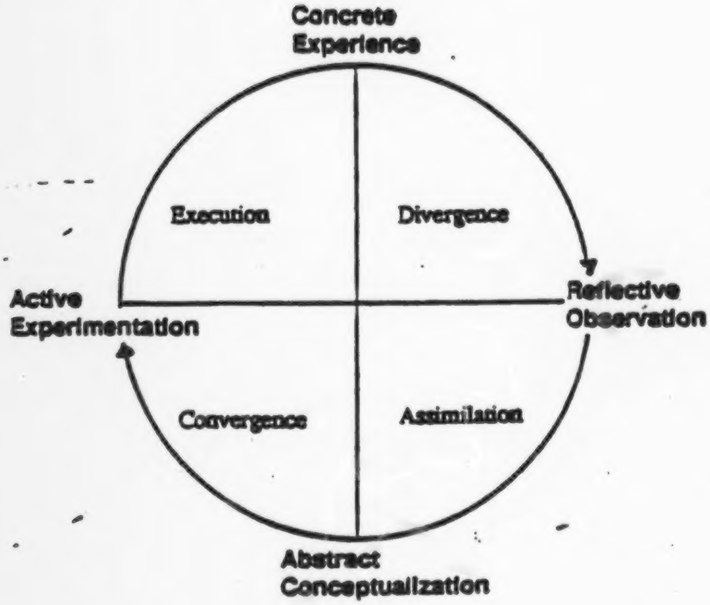
Concrete Experience
Execution
Divergence
Active Experimentation
Reflective Observation
Convergence
Assimilation
Abstract Conceptualization

Figure 1 David Kolb's Experiential Learning Cycle

cycle that begins with actual experience, but experience that leads to learning through reflection, by thinking about the experience and asking questions, leading next to abstract conceptualization, where generalizing moves one away from self to others. Finally this cycle leads to active experiementation that may result in changing or modifying action from knowledge, a process that may begin the cycle anew to continue unending until death.

Thus, Kolb states "Experiential learning theory offers a fundamentally different view of the learning process from that of the behavioral theories of learning process from that of the behavioral theories of learning based on an empirical epistemology or the more implicit theories of learning that underlie traditional educational methods, methods that for the most part are based on a rational, idealist epistemology" (p. 20). However, Kolb insists that experiential learning is not a third alternative but rather a perspective on learning that combines experience, perception, cognition, and behavior. Kolb sees this relationship of learning and knowing as a "... dialectic conflict in the Hegelian sense in that although the results of either process cannot be entirely explained in terms of the other, these opposite processes merge toward a higher truth that encompasses and transcends them" (p. 107).

Finally, what are the implications of experiential teaching, especially in the internship experience? As borne out by the survey of collaborative learning I have reported on, faculty have responsibility and no or little power over the experiences of students. They have little to no power to create and manage the environment and materials for learning. For some, this is too great a difference from other, more traditional methods. If they are not in total control, they don't want any part of it; thus the situation reported of making no on-the-job site visits during internships. Students on the other hand have both the responsibility and much power, but in each stage of the process faculty should play an important role of helping and guiding, an enabling role that allows the student to complete the cycle successfully. This role is perceived very differently by not only faculty, however, but also by all participants in the experiential internship experience. Also, experiential teaching is time consuming and not readily recognized in many institutions as a legitimate part of an academic load, causing further problems for the success of such programs. Such problems can be relieved by released time or by spreading the work load around. Coherent policies need to be developed if such experiences will allow the fullest development of a student's learning potential. Most important, as I have discovered during this research, is that a more sophisticated understanding of the place of experiential learning in the academic environment is needed. I plan to continue to explore the theoretical principles that I see as being a necessary part of the knowledge of people working with internships and other experiential activities. They must have this knowledge so that they can articulate persuasively the necessity for and benefits of such experiences for students at a level beyond the first-hand testimonials most of us seem to rely on to justify such student activity for academic credit.

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REACHING OUT: DESIGNING AND TEACHING A GRADUATE-LEVEL COURSE IN THE THEORY AND RESEARCH OF MEDIA SELECTION

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Technical communication programs tend to focus on certain rhetorical theories and particular problem-solving modes. Most programs, for example, currently emphasize the rhetorical theory base of purpose-analysis and audience-analysis and the problem-solving medium of the written word. Our students, that is, are learning how to answer such questions as "What purpose is a document supposed to serve?" "What audience will read it?" "How can one design and produce a document that will satisfy that purpose and that audience?" But technical communicators, now and in the future, need to know more.

I believe that technical communication programs need to expand their rhetorical theory base to include theory and research in the media (channels) of communication, and I believe that they need to expand their problem-solving training to include training in media that are oral as well as written, media that are nonverbal as well as verbal, media that are time-bound as well as time-free, media that are space-bound as well as space-free, and media that are big (complex and expensive) as well as media that are small (simple and "cheap"). When they are solving technical communication problems, technical communicators should ask and be able answer such questions as "What form should this communication take?" "Is a written, hard copy, solution the best?" "What are my options?" "What factors should influence my decision?" "What factors do influence my decision?" In other words, when they are solving technical communication problems, technical communicators need to know what media are available for transmitting messages between communication sources and receivers, and they need to understand the factors that influence media choices.

In order to accomplish this goal, members of technical communication programs will have to reach out (1) to other disciplines (educational psychology, educational technology, mass communication, speech communication, instructional design, and others)--to read their theory and research on what media are available and what can be said about a medium's effectiveness; (2) to the faculty from these disciplines--asking them to teach courses, advise students, and collaborate on research; and (3) to designers and vendors of "new media"--to get access to the "new media" and to understand their use, assess their impact, and influence their design.

In the pages that follow I would like to explain how I am trying to respond to this challenge. I have reached out to other disciplines, faculty, and vendors and have designed a graduate-level course entitled "Research and Theory in Media Selection." I have created a syllabus that asks my students to consider the questions I have raised above. I have involved them in activities that require them to reach for answers. I offer that syllabus and describe the activities, hoping that others will join me in expanding the competence of future technical communicators.

Excerpts from Syllabus

Student Performance Objectives: Students develop the ability to (1) list and describe all of the media that are currently available for transmitting messages between senders and receivers; (2) identify and explain many of the factors that influence the choice of one medium over another; and (3) evaluate and propose research that investigates the various connections between media and senders, media and receivers, and media and society.

Activities: As a seminar group, students discuss assigned readings, engage in in-class problem-solving exercises, and listen to each other's reports. As individuals, students prepare and present three graded assignments: (1) a sender cost analysis report, (2) a statement of environmental impact concerns, and (3) a proposal for research on media selection in/for technical communication. (Detailed instructions for these assignments are provided below.)

Text Wilbur Schramm, Big Media, Little Media, (Beverly Hills, CA: Sage Publications, Inc., 1977).

Class Schedule (for a 10-week term):

Week #1: Introduction to seminar--(What are "media"? What are "the media"? A brief chronology of the history of human communication.)

Week #2: What are the variables in media selection?--(Discuss Schramm, Chapters 1-3; Introduce and compare various media selection models.)

Week #3: Exercises in medium to medium translation--(Taking examples of technical communication produced in one medium and challenging small groups of students to generate alternative message forms for similar and different purposes and audiences.)

Week #4: Sender Cost Analysis Reposts--(Discuss Schramm, Chapter 4, and Listen to students reports)

Week #5: Micro-audience (receiver) variables

Week #6: Macro-audience (cultural) variables

Week #7: Environmental Impact Statements--(listen to student reports)

Week #8: Individual Conferences re: research proposal reports (including Schramm, Chapters 5-9)

Week #9: Research Proposal Reports

WEek #10: Research Proposal Reports

Sender Cost Analysis Report

Purpose: The purpose of this assignment is for students to generate and share reference materials that will be valuable for them as technical communication problem solvers. The reference materials focus on some of the "costs" that senders/users will have to consider if/when they choose to use a particular medium.

Task: Each student (1) chooses a different communication medium from a provided list; (2) engages in fact-finding about that medium (research in libraries, interviews with hardware producers, sellers, users, etc.); (3) prepares a 2-3 page, typed, single-spaced, report following a prescribed format; (4) duplicates sufficient copies of the report for all members of the seminar; and (5) shares the report with the class (an oral presentation to accompany the handout).

Format: The report covers five topics. KNOWLEDGE REQUIRED--What does someone need to know about the medium in order to use it? For example, as an object, what does the medium look like? What does someone need to know about how it works? What attributes does the medium have? SKILLS REQUIRED--What does someone need to know how to do in order to use the medium? For example, what physical and mental capabilities are needed to "work" the medium? COST--What does the medium cost to purchase, to use, and to maintain? Be specific and current--how much does it cost now and where can one get it locally for that price? ACCESS--Where is at least one local place that students in the class can have access to this medium and what is involved in gaining that access? SELECT BIBLIOGRAPHY--What readings are helpful for understanding the medium? Include a minimum of three sources, properly cited, with a sentence or two explaining the content/value of the source.

To date, students in my classes have reported on the following non-print media: radio, CD-ROM, electronic blackboard, slide/tape, speech synthesis, teletext, computer animation, holography, 16mm film, videoteleconferencing, viewdata, videotape, and interactive videodisc.

Environmental Impact Statement

Purpose: The purpose of this assignment is for students to reflect on the impact of different media on audiences and/or cultures. More specifically, students are asked to consider the social, political, and ethical implications of particular media choices. (Each student is responsible for assessing the environmental impact of the same medium selected for the Sender Cost Analysis Report.)

Task: Each student writes a two-page, typed, paper that explains the student's speculations on three major questions: (1) How does use of the medium affect the way people interact with each other? (What are the social implications of the medium?) (2) How does use of the medium affect the way society is organized and resources are allocated? (What are the political implications of the medium?) (3) How does use of the medium affect people's sense of right and wrong? (What are the ethical implications of the medium?)

This assignment asks students to consider the desirable, direct, and anticipated impact(s) of particular media and encourages them not to overlook the undesireable, indirect, and unanticipated impact(s) as well. My students have reflected on such concerns as the social detachment of teletext and videotape, the loss of privacy with viewdata, the interactive benefits of electronic blackboards when compared with closed circuit television, the potential for the proliferation of bad graphics with computers in the home, the benefits of slide/tape presentations and interactive videodiscs for equalizing educational differences, and potential for more pornography with the decentralization of videotape production.

A Proposal for Research on Media Selection in/for Technical Communication

Purpose: The purpose of this assignment is for students to gain experience in evaluating and proposing research in technical communication. Ideally, much of the research that is proposed in this assignment will be conducted at some point in the not too distant future and will yield valuable results for theory about media selection in technical communication.

Task: Students write and submit papers (typed, double-spaced) that describe what they would like to research, why they would like to research it, and how they propose to conduct the research. Students prepare and give 12-15-minute oral presentations of their proposals and invite feedback (reactions, comments, suggestions, etc.) from other seminar participants.

Format: While research proposals may vary widely in format, according to the desires of particular persons and agencies that support research, the following is offered to students as a suggested format that reflects some of the major requirements of research proposals:

I. THE PROBLEM AND REVIEW OF LITERATURE.
   A. INTRODUCTION: (about 200 words or less) brief statement of problem background which will orient the reader to your problem statement.
   B. STATEMENT OF THE PROBLEM: state as an hypothesis, question, or purpose.
   C. REVIEW OF PREVIOUS RESEARCH: summarize previous studies which directly relate to your problem, and will justify your anticipated research (probably not more than 1200 words).
   D. DEFINITION OF TERMS: include any terms which need precise definition for your research.

II. METHODOLOGY.
   A. GENERAL: a short paragraph which introduces your proposed plan for solving the research problem.
   B. PROCEDURE: describe how you will carry out the research plan, ie. how you will derive your date.

(General notes:
   1. Write in future tense (except in reviewing studies).
   2. Document thoroughly; if a reference is not in general circulation, prepare an abstract and append it to the proposal.)

For this assignment, some of my students have raised the following research questions: Which elicits better recall, visuals with labels or visuals with explanatory text? Which will yield a better paper--when high school students get directions from paper copy or from a computer monitor? When using reference materials for a commercial banking application, do users prefer online or paper documentation? What variables will help determine whether computer technology can be used successfully for continuing nursing education? Is follow-up written documentation necessary when you have an in-house training program that uses videotape? What media are currently used and preferred by the faculty in a particular medical school and by the scientists in several government agency laboratories? What are the relationships among learning styles, amount of computer experience, and use of online and/or hardcopy tutorials?

Recommended Reference Readings

As a guide for those who might want to consider designing a course in media selection, I offer the following list of valuable resource materials:

Anderson, Ronald H. Selecting and Developing Media for Instruction. 2nd. ed. New York, NY: VanNostrand Reinhold, 1983.

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Romiszowski, A. J. The Selection and Use of Instructional Media. New York, NY: Wiley, 1974.

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Weaver, Daniel H. Videotext Journalism: Teletext, Viewdate, and the News. Hillsdale, NJ: Lawrence Erlbaum, 1983.

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REACHING OUT TO OTHER DISCIPLINES

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PROLOGUE

The two and one-half year old Interdisciplinary Writing Program at the University of California, Santa Barbara, does indeed reach out to other disciplines. By now, some other disciplines even reach out to us. We provide several models of writing instruction, and we have had an impact on the way that writing is assigned, taught, and valued on our campus of 18,000 students.

I will discuss our program history and its present situation, but primarily I will focus on its future. In the last section, I will describe the difficulties in finding a suitable home for a program that disturbs conventional institutional arrangements; and on the difficulties in staffing a professional writing program when the only jobs offered by the institution are temporary and nontenurable.

PROGRAM HISTORY

A book salesman told me recently that on every campus he's visited that has a program of interdisciplinary writing classes, the program was initiated in the provost's office and continues to be funded by the provost. "Provosts and deans love this stuff," he said.

At the University of California, Santa Barbara, the initiative for our Interdisciplinary Writing Program did indeed come from the provost. He hired me--a technical writing veteran--to develop an upper-division, cross-curricular writing program. The program is now in its third year, and its several styles of teaching writing seem well-suited to our campus. It was housed, from the start, in the Department of English--chiefly because the English Department chair and Freshman Composition director lobbied persistently in the Provost's office for such a move. Like Freshman Composition on our campus, it is presently in limbo, because all writing on campus has recently been evicted from English and we await an outside review and a response to the recommendations of that review by our administration.

The Interdisciplinary Writing Program offers several kinds of writing instruction:

*In one series--new to our campus--we have free standing courses in technical writing, writing for social sciences, writing for business, and legal writing.

*In another series we have writing adjuncts--two-unit, pass/not pass classes linked to regular upper division classes in a variety of subjects. We have so far offered adjuncts linked to classes in 15 departments: studio art, anthropology, linguistics, history, English, sociology, religious studies, political science, psychology, art history, geology, environmental studies, biology, economics, and film studies.

*In addition, we offer a year-long seminar to support the writing of an honors thesis in the department of political science; a two-quarter seminar to support the writing of an essay in the program in global peace and security; and a two-quarter seminar to support the writing of a thesis in the Master's program in Business Economics.

*In other initiatives, based on the MIT Coop Model, we offer a series of lectures about writing in regular class meetings of upper-division classes in economics environmental studies, and geology. We don't though, as MIT coop faculty do, read student papers or provide any conference time to them. Next year we plan a series of lectures about writing open to the entire campus community.

The point I am trying to make is that the program attempts to be flexible and responsive to the needs of departments.

In the pilot year we offered 25 classes, 21 of them writing adjuncts. In the second year, we offered 43 courses, 31 of them adjuncts. This year, we will offer 48 courses, approximately 36 of them adjuncts. Administrators may want to know that this year's offerings represent 5.5 FTE.

The Interdisciplinary Writing Program has two theoretical bases. For one, like everyone else, we think that writing is a process and that an assignment of a long term paper due on the last day of the quarter is not an assignment that gives rise to meaningful opportunities for students to improve their writing. In our adjuncts, we present students with a series of writing options that fit the intellectual structure of the other course, enabling students to experience important parts of the writing process while they are learning more about their subject. For some students, this is a new experience. Many of them--or at least so they say in the course evaluations--have never written a rough draft before. And some of the professors with whom we work begin to suspect that in the past, they have been both the first and the last person ever to read a student's paper.

Our other important premise is that writing is a social activity, discipline specific. Students must learn to speak the language of the knowledge community they are trying to join; they need to learn how points are made and supported and what questions are worth asking. Often the writing instructors who teach adjunct courses have had to teach themselves about the discourse conventions of a discipline--matters such as documentation style; forms for representing quantitative information; and considerably subtler rhetorical and epistemological issues.

With the exception of the teachers of technical writing, all of the instructors who teach in the program are lecturers in what was, until July 1 of this year, the English Department Program in Freshman Composition. I have been free to hire outside of that pool, but within it, I located many lecturers whose combination of experience in teaching upper division writing, active involvement in writing projects of their own, and professional writing experience, seemed to me to fit them well to the challenge of teaching writing in a non-literary context. Since the beginning, 23 lecturers have worked in interdisciplinary writing. Two were unsatisfactory, from my point of view. One felt that the program was unsatisfactory: he called himself Mr. Goodwrench, claiming to feel like a garage mechanic tinkering with someone else's car when he taught adjuncts. The remainder have felt energized by their experience, are anxious for more assignments, and have even felt that their teaching of freshman composition is improved by their experience in working in disciplines other than English.

We seem to be changing the way that writing is assigned and valued on our campus, even changing the way that many professors teach their subjects. Some professors with whom we work have always assigned one long term paper; commonly, with the support of an adjunct writing class, they begin to assign several shorter papers that build to a term paper. Many professors with whom we work are so impressed with the term paper proposals we ask students in our adjuncts to write that they ask all of their students--not only the ones in the adjunct--to write a proposal. For some of these professors, dealing with student writing--and thinking--before the work is "finished"--while something can still be done--is a new experience.

FUTURE

The particular challenge of the program I describe is to survive and also to retain its unique identity as an interdisciplinary program. I would be sorry to see the program returned to English, where it never belonged, and I would be sorry to see it forced into a marriage of administrative convenience to a literature-based freshman composition program with which it has little in common. I would say, with Elaine Maimon, that "the future of writing across the curriculum is the only future for composition. It never made sense for composition teachers to work in isolation from their colleagues in other disciplines and for students to write outside the context of the rest of their academic lives" (70). The question is whether our institution--or any institution--can deal with intellectual initiatives in any way other than to default to traditional departmental lines.

The historical record of writing across the curriculum is disturbing. In a CCC article of May, 1987, David Russell describes the failure of two early writing across the curriculum programs--one at Colgate, which lasted from 1949 to 1961 and one at Berkeley, which lasted from 1950 to 1965. Both were substantive successes, but both were "victims of the compartmentalized structure of academia and the entrenched attitudes in the university both toward writing and toward interdepartmental programs" (189-190). The Colgate and Berkeley programs were unable to integrate writing into the organizational structure of the university "to the extent that cross-curricular instruction became self-sustaining, independent of the dynamic personalities who began the programs" (185). Because the early cross-curricular writing programs were not part of the regular departmental and administrative structure, they could not resist the institutional inertia which mitigates against interdepartmental efforts--despite the best intentions of all concerned.

The fundamental problem, then, is not pedagogical but political--not how to create a sound program, but how to place it firmly in the complex organizational structure of the university. To survive, Russell argues, writing across curriculum programs must be woven so tightly into the fabric of the institution as to resist the subtle unraveling effect of academic politics.

The other problem is also deeply political: how to staff a program that, by its nature, requires professionally active teachers of writing in a situation in which job security will be available to very few. Why, in fact, *are* the majority of college writing courses taught by graduate students and others in nontenurable positions? Lester Faigley suggests that the answer to that question will come only "when we look beyond who is writing to whom to the texts and social systems that stand in relation to that act of writing" (539).

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THE INSTRUCTIONAL COMMUNICATION WORKSHOP FOR GRADUATE TEACHING ASSISTANTS IN TECHNICAL AREAS AT THE UNIVERSITY OF MISSOURI-ROLLA

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PURPOSE OF THE PAPER

The purpose of this paper is to discuss the background of the teaching assistant problem at the University of Missouri-Rolla (UMR), to explain the Instructional Communication Workshop that was developed to help resolve this problem, and to summarize responses of the participants in the Workshop.

GENERAL BACKGROUND OF THE TEACHING ASSISTANT PROBLEM

Like many institutions that emphasize engineering and science education, UMR finds itself in a dilemma in using teaching assistants. On the one hand it has had to rely increasingly on teaching assistants to staff basic undergraduate courses in a variety of disciplines. On the other hand the number of foreign teaching assistants has risen dramatically.

The use of teaching assistants has grown in basic undergraduate courses because senior professors--in short supply because so many have retired or moved to the private sector in recent years--have had to teach upper level undergraduate and graduate courses and have had to bear a heavy research load. Their research adds to the pool of knowledge that is essential to maintain the quality of higher education and that is essential to build the economic base of the state and the nation. The nature of their research is such that it requires the stimulation students in advanced courses offer. In addition, their research often requires the assistance of advanced students whose participation enhances their own education.

The growing number of foreign teaching assistants is the result of at least two major factors. First, there is a high demand for and high salaries offered to new graduates in engineering and the sciences. More Americans opt for high pay--often higher than their own professors--and the sense of immediate security it offers, than opt for graduate study and the low pay of a teaching assistantship. Second, the opportunity to study at an American institution is eagerly sought by foreign students because of the quality of education they receive--an education that their native countries want them to have so they can solve problems and build economies with their scientific and technical knowledge (Ref. 1).

UMR AND THE TEACHING ASSISTANT PROBLEM

Thus, many undergraduate classrooms and laboratories at UMR, like the undergraduate classrooms and laboratories at many other institutions, have come to be staffed by foreign teaching assistants. Many of these individuals are assigned as teaching assistants almost immediately after they arrive in the United States: while their technical knowledge is top-notch, they have neither a knowledge of the culture of the American classroom nor the communication skills to perform as well as they might as a teacher.

At UMR both faculty and students expressed concerns about foreign teaching assistants specifically and teaching assistants generally.

These concerns were brought before the University of Missouri Board of Curators, and in January 1986 it mandated the assessment of "all graduate students for whom English is a foreign language. . .for their ability to communicate orally in English in a classroom setting prior to receiving a teaching appointment" at any University of Missouri campus.

In June Governor Ashcroft signed Senate Bill 602 that required all state colleges and universities to assess "any graduate student who did not receive both his primary and secondary education in a nation or territory in which English is the primary language. . . for their ability to communicate orally in English in a classroom setting prior to receiving a teaching appointment." In addition, the law required that "All graduate students prior to filling a teaching assistant position as a graduate student, who have not previously lived in the United States shall be given a cultural orientation to prepare them for such teaching appointment."

UMR had already begun to respond to the need for improving classroom communication. In October, 1985, three months before the Board adopted its policy and nine months before Governor Ashcroft signed Senate Bill 602, the campus had a regular credit course in the works to meet the problems identified by students and faculty. The course in Instructional Communication for graduate teaching assistants was offered during the Spring, 1986 semester and limited to fifteen students, the course had thirteen foreign teaching assistants and one American teaching assistant enrolled. Experiences in planning and implementing the course as well as feedback from its fourteen students provided the foundation basis for the non-credit Workshop required of all potential graduate teaching assistants, both foreign and American.

UMR'S INSTRUCTIONAL COMMUNICATION WORKSHOP

Communication competency was the focus of the Workshop. Emphasis was placed on presentation competency, interpersonal competency and oral language competency. In order to facilitate the understanding and--very importantly--the practice of these competencies, the first week of the Workshop entailed eight-hour days filled with lectures, performance activities, and individual consultations. In addition, all foreign participants were required to take the SPEAK (Speaking Proficiency English Assessment Kit) version of the TSE (Test of Spoken English) test developed by the Educational Testing Service to help Workshop staff understand and work with individual language needs.

Presentation competency was developed in sessions on selecting, organizing and delivering ideas and information orally. Participants made several presentations that were videotaped and evaluated in writing and in person by both Workshop staff members and other participants.

Interpersonal competency was the subject of sessions that dealt with the "culture" of the American university, classroom management, including the preparation of documents such as the syllabus and tests to support oral communication, leading discussion, listening and working with students on a one-to-one basis. Individuals in the Workshop were involved in role-playing situations and other activities that helped them build an understanding of interpersonal competency.

Language competency was the theme of sessions on the use of the voice, the elements of articulation, and clear English diction.

Special emphasis was given to techniques for clear, precise speech and for controlling elements of anxiety that hindered speaking.

The second part of the Workshop involved the assessment of participants. Assessment procedures were developed to provide an effective, efficient measure of classroom communication competency. In a review of attempts to assess foreign teaching assistants at twenty-eight colleges and universities between 1979 and 1986, the procedure developed at the University of Michigan's English Language Institute (ELI) appeared to be strong. After a consultation with staff of the ELI, the Workshop faculty at UMR decided to utilize the ELI procedure. However, the procedure's emphasis on correctness of English language usage was modified to include consideration of presentation abilities such as organization and proper delivery of information and ideas. Since American teaching assistants were also assessed at UMR, an additional procedure was developed using standards of classroom communication, but not including an assessment of correctness of English language usage.

RESULTS OF ASSESSMENT OF TEACHING ASSISTANTS AT UMR

At the end of the Workshop, records showed that 93 individuals had completed the first week of instruction, including 30 Americans. Of this group, 91 completed the assessment procedure, while 2 failed to attend. Another 8 individuals did not attend the first week of instruction, but completed the assessment. A total of 101 individuals participated in both segments of the Workshop. These individuals came from 17 foreign countries and the United States. There were a total of 23 different native languages in the group. The participants represented 14 different departments in science and engineering disciplines from chemistry to mechanical engineering.

A preliminary analysis of the Final Assessment Reports and the SPEAK/TSE tests of 60 foreign participants showed that the mean Assessment was 3 (Prescribed Acceptability for teaching certain courses; supplementary Communication courses required as specified); about 65% of the participants scored at or above this level. The median score was 3+ (Conditional Acceptability for a full range of teaching duties in most departments; supplemental Communication courses required as specified) (Ref. 2).

SPEAK/TSE scores showed a mean of about 190 (representing the fiftieth percentile); about 50% of the participants scored at or above this level. The median score was the same as the mean: 190.

A correlation of the Assessment ratings and the SPEAK/TSE scores was .79, representing a substantial degree of fit between the two measures. That is, the Assessment ratings of classroom communication competency were accurately related to the SPEAK/TSE scores of general English language usage competency.

Based on the results of the evaluations, 27 foreign participants were declared eligible for teaching appointments, and 33 were declared eligible for appointments as grading assistants.

The Workshop staff recommended that 29 foreign and 2 American participants be re-evaluated at the end of the Fall, 1986 semester. The staff also recommended that various individuals sharpen their communication skills by enrolling in different courses such as Instructional Communication or Interpersonal Communication or by participating in organizations devoted to enhancing communication competencies such as Toastmasters.

PARTICIPANT EVALUATIONS OF THE WORKSHOP

In evaluating the Workshop, participants unanimously agreed that it should be offered in the future for other new teaching assistants. Participants rated the Workshop instructional sessions and their assignments in the Workshop on a scale of from 1 to 7, with 1 representing a "Poor" rating and 7 representing a "Superior" rating. The instructional sessions received mean ratings of 5.70 for quality, 5.65 for importance, and 5.33 for usefulness. The assignments received mean ratings of 5.64 for quality, 5.82 for importance, and 5.82 for usefulness. Clearly, the participants viewed the "hands-on" aspect of the Workshop as a significant extension of the well-rated instructional sessions.

CONCLUSION

The Instructional Communication Workshop represents the application of principles of technical communication to the classroom. By working with teachers of science and engineering, especially in the face of language, as well as subject matter problems, the Workshop staff help them to develop basic competencies for more effective, efficient classroom communication.

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1. A report concerning the roots of this situation is in Ezra Bowen, "Wanted: Freshm, Homegrown Talent," Time, January 11, 1988, 65.

2. The assessment guidelines, including the forms, are available from Dr. Sam Geonetta, Speech and Media Studies, University of Missouri-Rolla, Rolla, Missouri 65401-0249.

DISCIPLINARY TENSIONS: TEACHING SELF-CRITICAL REFLECTION IN AN UPPER-DIVISION TECHNICAL WRITING COURSE

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This paper invites participation in helping me rethink possibilities for an advanced technical writing course. The audience for such a course would be juniors and seniors, mainly from professional programs of study such as engineering, computer science, landscape architecture, industrial design, public communications, management, etc. While many so-called nonprofessional students tend to appear in such a course, these tend to share with the professional students a number of characteristics: in particular, they are frequently career oriented, goal directed, with one foot perched in academia, one foot moving toward the workplace. The university experience for our upper-division technical-writing students is often a gateway, providing the ticket to enter and skills to function in the real world they are eager to be a part of. In our informal discussions at Syracuse University, we've called this technical writing student Leslie, and we've been thinking a lot about what some of our goals might suitably be for courses designed with these Leslies in mind.

Recent statistics from our Arts and Sciences Dean's office cite the fact that more than half of all undergraduates in America are enrolled in professional programs. So the majority of upper-division Leslies in a university would be expected to come from professional programs. But even those Leslies not from professional programs come to us exhibiting symptoms associated with professionalization, notably overspecialization. An interdisciplinary, Mellon-funded faculty project at our university found after two years of study that the conventional distinction between liberal and professional education appeared exaggerated and anachronistic, for the elements that customarily distinguish a professional education program were heavily present in liberal educational fields as well. Whether 'professional' or not, the various specialized disciplines and professions were found to form separate, autonomous islands, each claiming to be self-regulating and distinct, each exhibiting and fostering a degree of ethnocentrism. Thus all of our Leslies, whether from professional schools or not, bring to us some of the same dilemmas, problems, and challenges.

At Syracuse University, we began a formal project analysing our student audience this summer. The technical writing teachers almost uniformly expressed a sense that our Leslies have limited experience in reading and writing. Most of their reading and writing, teachers felt, is discipline-specific. The students have been accustomed to the reading process as one in which their responsibility is to pull information from authoritative texts. The teachers also hypothesized from their experience that most of our Leslies' writing experiences at college have involved displaying mastery of information and concepts as well as form and mechanics. The students have tended to describe their tackling of such assignments as efforts to figure out what the teacher wanted. Most of our Leslies seem to hunger for prescriptive formulations; they want to be told what to do and how to do it.

That's our teachers' analysis of our audience, an analysis we're still refining by gathering and compiling detailed information about our upper-division technical-writing students and their attitudes to and experiences with writing and reading, and testing some of the hypotheses and preliminary conclusions. But before we come to closure in our understanding of the needs and challenges presented by the student body in advanced technical writing courses, we are also beginning to consider what might be desirable and suitable goals for our courses that teach writing to these very real, quite complex Leslies who appear in our classes. Leslie is not a stereotype but an individual; our classes are made up not of the average student, but of a host of distinct persons.

Our enterprise is to teach writing to these students--specifically writing as practised in specialized disciplines and technical or professional careers. That still leaves lots of leeway for course design, especially in an advanced course that is preceded by a sophomore course which introduces major rhetorical principles and which analyses as well as offers practice in handling major conventions appropriate for specific disciplines, audiences, and contexts. A follow-up advanced-level course can then go in a variety of directions. It can, for instance, give the student the opportunity to tackle a few large, quite sophisticated projects in a workshop-type environment. We do have such a course. It might also offer exposure to and experience in specific genres and media that cannot be covered in the introductory course, such as script writing for video, script writing for computer screens etc. We do have such a course also. These courses have goals of broadening the coverage, as well as of strengthening the level of attainment.

But I want to consider the possibility of a further goal in our advanced courses, one that seems particularly apt and desirable for the Leslies that we find in these courses. I want to explore the possibilities of a course curriculum that would foster and encourage reflective thinking in our technical writing students. It's a perfectly legitimate question to ask me why I choose critical reflection as an add-on goal for a technical writing course, normally thought of as such a practical, business oriented, nuts and bolts course. My answer is manifold.

First, our teachers share a sense that the focus on professionalization and disciplinary autonomy in the undergraduate curriculum at Syracuse University has led to a situation in which many of our students seem to have become unquestioning adherents of the practices and values in their own fields, poorly prepared to consider the impacts their practices may have on a wider society. Furthermore, some of the literature examining professional education parallels our sense in important ways. I'll cite one provocative book: Educating the Reflective Practitioner (1987) by Donald Schon, a named professor at MIT who also teaches at Harvard. In this book, and in his earlier The Reflective Practitioner (1982), Schon makes the point that much of actual professional practice falls outside of the rational procedures provided in professional training. The theory and rules packaged so neatly for students do not work for the confusing, indeterminate real situations that professionals are so often faced with, frequently involving conflicts among values. Yet both professionals and critical observers of professions have been pointing out with increasing frequency the centrality of such problematic situations in professional practice. Schon compiles quotes from deans and faculty of professional schools bemoaning that professional curricula are generally not preparing students for such conditions of uncertainty within which professionals must often make decisions. According to Schon, the abilities required in such situations are characterized frequently by artistry rather than by scientific principles. He advises the value of a "reflective practicum" as a key element of professional education (p. 18), aimed at helping professional students acquire the kinds of artistry essential to competence in the "indeterminate zones of practice" (p. 6). Schon advocates practicums that can provide, through coaching, the opportunities to execute complex professional tasks in nonthreatening situations; they will provide also the opportunities for dialogue that stimulates close analysis of professional practices.

In other words, Schon is advocating a way to help students not only learn to do something, but to learn to do it and to learn to think about it -- in fact, to learn to do it partly through learning to think about it. Schon is seeking to bolster and improve professional practice through fully integrating and permeating what Habermas would term rational-purposive action, basically pragmatic in nature, with what Habermas terms communicative-reflective action, that gives attention to values and social dimensions.

Schon proposes a ladder of reflection which begins with a student's verbal description of her own process of thinking through a professional project, as well as written observations of her mentor's process. The student is here noting what it means to think like a professional, as well as developing habits of contemplatively probing what she and others are doing and not doing as they act. The student then reflects on these observations and the ways of thinking and acting as a professional that the student has observed, and ultimately reflects on these reflections. Negotiating such a ladder of reflection encourages a student to question her own actions, reactions, and understanding, but also to critically examine her mentors and the adequacy of textbook received procedures in her field.

The impetus to encourage and integrate reflection in our technical writing courses thus comes both from inside -- from our teachers and their analyses of the students we teach and from other study groups on campus -- as well as from external sources, in recent critiques of the professions. Technical writing courses seem particularly appropriate sites for introducing such a focus, since students would naturally be asked to undertake large-scale writing projects, and to consider these holistically in terms of their broad social impact as well as their immediate contextual circumstances. Technical writing courses also lend themselves to the introduction of frequent conferences in which faculty members discuss with individual students the issues and problems involved in particular writing projects, as well as guide students in discovering ways to resolve the problems and to produce a suitable written document for the needs of the immediate situation. The advanced technical writing course thus provides an ideal location for reflective thinking about communicative activities and decision-making that a student observes or participates in.

What, then, do we propose to do to change our courses? Our thinking and attempts to change are thus far preliminary and experimental, and I would welcome suggestions from colleagues. But here are some of our ideas to date. Our experimentation now involves beginning the courses with a unit that asks students to reflect on their reading and writing histories and attitudes and on their writing processes. These papers become objects of class inquiry, as the entire group examines the total picture compiled from all class members and determines what it may mean. Students are asked to continue such meditative analyses throughout the semester in journals, through correspondences with others in the class, or by a variety of other means. In our 'experimental' sections, the students do major projects -- reports, proposals, and manuals -- while simultaneously using writing and conferences to contemplate and analyse the process. As suggested in the methodological chapters in Schon's book, teacher conferences become opportunities for encouraging reflective analysis and critical questioning, prodding students to think about what they are doing as they write, what the possibilities might be as to approaches, what the different effects might be, and what the consequences might be. Several teachers also ask them to reflect on the teacher's discourse in class and in the conferences, as the teacher models design and planning approaches, suggests directions to the students, and reacts to the students. In addition, several teachers are trying to get students to examine textbook advice or standard technical-writing guidelines critically. My own class this semester problematizes student dependence on standard guidelines by having students use two texts rather than one. The students are comparing and critiquing the texts as part of the course. We're using two brand new texts: by Keene and by Anderson. The juxtaposition opens them to recognize a variety of different approaches and perspectives which they are being asked to think through themselves. I am resisting a class in which an authoritarian voice tells them what to do and how to do it and how to think about it. This method seems to be working to encourage them to begin really to think for themselves.

These experimental versions of an advanced class are being invented as we go along. Some sections are planning to move to a unit incorporating case studies of professionals, inquiring into the type of work and the problems in professional existence facing individuals in careers the students aspire to. We have compiled a large set of names of individuals willing to be interviewed by our upper-division technical writing students for this purpose. The students will also inquire into the writing involved in professional existence and into the suitability of their academic preparation for such demands. We have collected articles with the help of the different professional schools that can stimulate student thinking as to problems and issues arising in the various fields. Some of these texts involve older sociological studies; one class will have students do small-scale versions of such studies to test the applicability today. In all of its manifestations, the course thus turns into an inquiry unit, with reports generating naturally out of the group inquiry.

Let me emphasize that our students do tackle major representative types of technical-writing projects: reports, proposals, manuals, etc. We are not converting the technical writing course into a theme course instead of a writing course. Writing remains the main focus. What we are doing is additionally utilizing the tremendous potential that writing has to stimulate thinking. We are enriching our courses, not changing their nature as writing courses. Our experiences don't make the courses any easier to teach; they do not save teachers time, as I can readily attest. But the classes are more interesting and engaging for many of the teachers who've been involved in these efforts, and we hope for students as well. And if our students as well as our teachers can begin to develop a critical, reflective edge to their thinking and writing, we will have made some valuable headway.

THE METAPHOR OF THE WEB:
A LINK BETWEEN COLLABORATIVE WRITING AND GENDER STUDIES

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Within technical communications, the process of collaboration, or teams of writers, illustrators, editors, technologists, and managers cooperating to produce common documents, receives more attention each year. Now identified as the way industrial writers really write, collaboration is the subject of dissertations, textbooks, anthologies, and articles, as well as one focus of the research method ethnography. Classroom activities involve more collaboration than ever before as instructors prepare students for future writing jobs.

At the same time that technical communicators have sought knowledge about the collaborative process, psychological studies, particularly those that focus on gender difference, have been investigating the cultural roots of identification versus separation, collaboration versus competition. Gender studies have investigated why the female gender has been encouraged to relate while the male gender has been urged to separate and the resulting cognitive differences.

In tune with this year's CPTSC theme, "Reaching Out," I suggest that as technical communicators, we need to seek theoretical foundations for successful collaboration within these gender studies.

To represent the collaborative relationship, both communications specialists and gender experts have chosen the metaphor of the web. Marilyn Cooper uses the metaphor to represent "the ecology" of writing:

"The metaphor for writing suggested by the ecological model is that of a web, in which anything that affects one strand of the web vibrates throughout the whole" (370). Mary Field Belenky and her co-authors use the web to illustrate women's "connected knowing": The web "suggests a complexity of relationships and the delicate interrelatedness of all so that tension and movement in one part of the system will grow to be felt in all parts of the whole. In the complexity of the web, no one position dominates over the rest. Each person--no matter how small--has some potential for power; each is always subject to the action of others" (178). Cooper's metaphor stresses the connections between writers and the societies in which they function. Belenky et al. choose the web to emphasize the connections women form with partners, parents, and children. Communications specialists have selected the web metaphor to represent the real relations between writers and their societies, while gender specialists use the metaphor to explain the psychological motivation and effect of connections.

Ethnographic studies in particular have described the collaborative process in industry. Steve Doheny-Farina concludes his studies of the collaborative process within a computer firm by stating that "it is probably best for collaborators to seek, in the Rogerian sense, areas of shared understanding between each other . . . to discover the point of view of the other writers . . . to be prepared to alter their own views as they strive to understand those of their fellow collaborators . . . and to develop a negotiative attitude with each other . . ." (33-34). Doheny-Farina describes the effects the writers have on corporate policy and vice versa, which could be well represented by the web metaphor. His mention of Carl Rogers is significant, for he senses that the way to effective collaboration rests with interpersonal skills.

Mary Beth Deb's dissertation on collaboration in the computer industry also emphasizes that "the production of any text in industry is a social activity, dependent on the mutual contributions of the organization and the individual writer" and that "within a team, writers must adapt their individual behaviors to those of the team" (1,3). While these and other technical communicators recognize the necessity of understanding others, adapting behavior, relating within a society, and negotiating between differing values, how these actions are to be achieved lacks prescription. While such skills as listening and questioning appear to technical communicators to aid the collaborative process, how to learn or teach these behaviors remains less clear.

While general composition theorists also stress the collaborative process, they too remain primarily descriptive. By going beyond the work of Kenneth Burke and Kenneth Bruffee, Marilyn Cooper stresses that writing changes social reality. Systems of ideas, purposes, norms, textual forms, and such all affect the writer while the writer in turn changes these systems by the very writing process. All the characteristics of any writer or piece of writing, Cooper asserts, both "determine and are determined by the characteristics of all the other writers and writings in the system" (368). In deconstructing the Platonic view of invention, which assumes that the writer is an isolated unit apart from social forces, Karen Le Fevre reveals that this ideal of "individual autonomy" reinforces a patriarchial culture rather than describes how writers write. Finally, Anne Ruggles Gere discovers that if authority in a writing group originates within, rather than without, the group itself, the relationships in the group will be nonhierarchical and that the group will naturally emphasize cooperation rather than competition (50). These theorists then determine that writers affect as well as are affected by societies throughout the writing process and that old views of the isolated and individual writer represent a political and controlling ideal rather than the reality of the writing process. While composition specialists describe classroom activities such as group projects and reports that require collaboration, they avoid addressing what creates a desire to collaborate. Here gender specialists, because they deal with both the urge to and the avoidance of collaboration, can contribute much to composition theory, and in particular, the field in which collaboration is most required, technical communications.

Within gender studies, we find not only the description of the collaborative web but also the origins of the impulse to create the web. These studies look at the urge to relate and cooperate and the sense of self that supports or blocks collaboration. Three major theorists, Nancy Chodorow, Carol Gilligan, and Mary Field Belenky and her colleagues, believe that the ability to relate comes from the gender distinctions stressed within the family and the subsequent systems of knowledge valued by the female gender. If we can discover the causes for these different attitudes, then we can encourage the behavior that supports collaboration.

Nancy Chodorow documents that the culturally created female tends to remain connected to the world, while the male is independent in that world. Based on the assumption that women still do most of the parenting, Chodorow's study concludes that in the Oedipal stage for boys, turning away from mother represents independence and individualization, progress, activity, and participation in the real world. Because their gender does most of the parenting, girls define themselves more as people who relate. If boys generally see themselves as separate and distinct, girls tend to have self-images based on their continuity and connections to others. Of course, summarizing Chodorow so briefly appears to reinforce masculine and feminine stereotypes. And as Evelyn Fox Keller and Helene Morglen point out, "under certain circumstances, cooperation may actually be facilitated by differentiation and autonomy" (27). However, Chodorow's statements that girls mature with a "basis for empathy" built into their definition of self and that mothers and daughters relate because they feel fundamentally alike suggest that if we discover why collaborators identify with each other's values and needs, then we have a means for "teaching" collaboration. Moveover, if we encourage collaborators to see success as measured not by distinction but by connection, then corporate culture can reinforce and encourage the understanding and negotiation that Doheny-Farina and others describe.

Such a change is difficult because it involves not only a shift in behavior, but also a change in attitude. Carol Gilligan speculates that while women see cooperation metaphorically as a web, our culture trains many men to see connection as an entrapping net. According to Gilligan, because masculinity is defined through separation, men fear intimacy and therefore wish to be alone, moreover to achieve through competition a place at the top of a hierarchy. Femininity, defined through attachment, causes women to fear separation found too far on the edge of the web. Neither place, Gilligan says, is comfortable. Such gender distinction leads to different ethics; femininity perpetuates an ethic of care, which is undervalued in the public sphere, and masculinity as ethic of objectivity, which has been overvalued.

Thus, if Chodorow and Gilligan are correct, encouraging connection and collaboration calls for a fundamental change in the self-image for men.

to understand and negotiate may be in conflict with the values of a good portion of the population. To complicate the issue, if we use Keller and Morglen as a check again against Chodorow and Gilligan, we might find that close connection itself might encourage competition. Keller and Morglen find that, as evidenced in sisters' relationships, the "very closeness of the relationships seems to compel comparison of the partners" and to "exacerbate the tendency to equal the other's success with one's failure, and vice versa" (33). Not only is true collaboration difficult to achieve, but also competition sometimes impossible to eliminate.

Finally, masculine or feminine self-images lead to different cognitive structures. Belenky and her colleagues distinquish between feminine connected knowing and masculine separate knowing. Separate knowers are governed by laws, where authority is objective and reason rules, while connected knowers require intimacy and equality between self and other. The connected knowing stage of women matches the writing groups described by Gere: Belenky et al. state that in this stage people utter half-baked truths, authority rests in the commonality of experience, and the personality of each member of the group enriches the group's understanding (118-19). Thus Chodorow, Gilligan, an Belenky et al. state that the impulse to collaborate comes from basic self-image, which in turn determines cognitive preference.

Obviously the link between the need for technical communicators to learn and teach collaboration and the heightened interest in the cultural roots of gender identity exists. What can gender specialists' knowledge about self-image and cognition tell us about how to affect positive collaborative behavior?

They tell us that we cannot teach successful collaboration. We can require collaboration, evaluate collaboration, and give students tools such as listening and questioning to aid cooperation. Effective collaboration depends on attitude--therefore, a change in attitude for many. In suggesting a modified approach to how gender specialists view collaboration, Keller and Morglen find one way to affect this change in attitude: "Given the fact that neither competition nor cooperation alone can adequately describe real interaction between people in the real world--be they men or women--we would like to end by asking: How many of our difficulties are exacerbated by the acceptance of a bifurcation between these two modes of interaction?" (36). In assigning cooperation to femininity and competition to masculinity, we fail to recognize that men must have the desire and potential to cooperate--since we witness effective collaboration by both genders in our ethnographic studies. However, the culture we all are a part of undervalues cooperation (and "femininity") in the public sphere in general and makes connection alien to the self-image of many males. Within collaboration sometimes conflict or competition leads to discovery, Keller and Morglen remind us, but also competition, long valued as the arena for success, must not mask the impulse to cooperate. A change in attitude as we grade students on the basis for their effective collaboration and as we award promotion and raises on successful cooperation must precede the change in behavior that we seek.

The web metaphor suggests collaborators should be encouraged to recognize commonalities of the society's members and that each member positively affect the whole as each decision affects the final product. Valuing the ability to relate, making it a part of positive self-image for both genders, is the first step toward cooperation, gender studies state. The impulse toward cooperation is paralleled in other fields. Within literary theory, critics focus now on poststructuralist and multiperspective readings. Within science, acknowledgment of intuition, or a "feeling for the organism" as Keller puts it, emerges. The call for reevaluating the canon in the Humanities grows stronger. And in psychology an appreciation of connection informs gender studies. In technical communications, we have specific industrial evidence to diminish the value of competition and increase that of cooperation as we focus more and more on the colaborative process.

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DESIGNING A MODEL FOR COLLABORATION

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During the 1986-87 academic year I worked as a technical writing staff consultant with Sandra Pakin & Associates, Specialists in Computer Documentation. Every project I worked on required collaboration. The collaboration process is one that we should study in an attempt to teach it to our students. Frequently, our students will become team writers in a corporate setting. This paper begins to analyze the methodology required for technical writing collaboration in business. Eventually, I will try to model the process and then apply to the actual collaborative project. My idea is to create a technical writing collaboration model analogous to the Process Model of Document Design created by J. Redish of the Document Design Center. The model will have to incorporate specific features about projects, general principles about the writing process methodology, and tasks assigned to the collaborators.

SPECIFIC FEATURES ABOUT PROJECTS

Assessing Client Needs

* initial interviews
* estimating the cost of the project
* preparing the proposal and the bid
* appointing the client's project director
* understanding the client's product

Collecting Information

* existing documentation
* acquiring hands-on experience with the product

Planning the Document Design

* assigning the project coordinator
* outlining the content
* establishing the format
* preparing the style guide
* installing electronic transfer of information
* learning new computer programs

Scheduling the writing

* assigning tasks
* staying on schedule
* gathering info from client and existing documentation
* writing the drafts
* revising the drafts

Completing the Project

* printing the product
* delivering the product

AN OVERVIEW OF THE WRITING PROCESS METHODOLOGY

* Pre-writing tasks

  Establish a working group with a technical writer and a designer
  Select a manager from the working group
  Collect information from the technical expert

* Writing tasks

  Write a proposal to complete the project
  Outline content and order the writing tasks
  Establish format, size, and graphics
  Schedule first draft

* Rewriting tasks

  Meet with technical expert for technical review
  Schedule second draft and review

* Production tasks

COLLABORATORS PERFORMING THE TASKS

Collaborator	Task
Manager	Liaison between external technical expert & team interview for technical information outline project & divide it into tasks finalize format & size

	establish schedules review drafts & arrange for technical review follow through on final production
Writers	write work contact estimate time & cost prepare statement of problem, objectives, procedure & credentials outline content and sequence information for a designated audience meet a writing schedule work with people whose perspectives differ from yours learn that all good writing is rewriting
Designer	establish format, size & graphics to please client & designated audience examine desktop publishing, camera-ready copy, typesetting produce completed document (typography, layout, illustrations)

I have already started on this project of creating a collaboration model for technical writing and applying it to the classroom. My paper on "Collaboration--Becoming A Team Player" appears in the 34th International Technical Communication Conference PROCEEDINGS, 1987. This talk illustrates the direction and part of the content for my further study and model of the collaboration process.

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THE NEED FOR COLLABORATIVE LEARNING OPPORTUNITIES IN TECHNICAL WRITING

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A survey of technical communication programs across the country--programs offering master's level work--sends the most sober of us into anxiety as we ponder if we should incorporate the broad range of training offered by the programs; and, if we should, how it is feasible for a single program with limited personnel to offer such extensive training. We may find one answer to the dilemma, if we seize the available means for involving students in collaboration with experts in various areas of technical communication. The need for collaborative learning opportunities arises from three factors:

1) the broad range of training represented by course offerings;
2) different emphases in existing technical communication programs;
3) the diversity of tasks performed by technical communicators involved in document production from inception to publication.

In preparing individuals for technical communication careers, we may overlook some of the simpler opportunities we have to engage students in collaborative learning experiences. It appears to be to our own interests as educators to think more pervasively about using collaborative learning to provide experience in many of the areas not now incorporated into individual programs.

Broad Range of Required Training Suggests Need for Collaboration

An examination of twenty-four graduate scientific and technical communication programs across the country clearly demonstrates that no single program provides all types of technical communication training that appear to be useful. One of our graduate students, Marcella Trevathan, gathered basic data on twenty programs for her thesis. Information about eighteen programs comes from tables being prepared by Marian G. Barchilon of Tempe, Arizona, for a forthcoming article in Technical Communication. [Trevathan includes six programs not examined by Barchilon--Louisiana Tech, Mankato State, Michigan Tech, North Texas State, University of Tennessee, and University of Texas El Paso; Barchilon examined four programs not covered by Trevathan--Boston, Houston, Minnesota, and the Polytechnic Institute of New York.] The accompanying table indicates that twenty-four programs offer courses in eleven areas (with number of schools requiring the course in parentheses):

1) Technical Writing (23/22)
2) Rhetoric/communication (17)
3) Internships (16)
4) Research/bibliography (16)
5) Editing/production (15)
6) Language/linguistics/ literature (14/10)
7) Computer science (13/8)
8) Audiovisuals/graphics (9)
9) Hard Science (3/2)
10) Journalism (2/1)
11) Oral presentation (1)

These data reveal at least two facts: 1) If we include journalism as technical writing, the twenty-four institutions require only one area of course work (forms of technical communication, which includes all courses generally designated as technical writing); 2) of the areas examined, no single program offers individual coursework in all eleven of them, although many programs have elective courses in a number of these subjects or incorporate some areas as units in other courses.

The course work in forms of technical communication includes such generally-designed courses as Technical Writing, Professional Writing, Advanced Composition, and Science Writing; but some institutions offer specialized writing courses like Specifications, Bid, Grants, and Proposal Writing at Louisiana Technological University, Message Design and Evaluation at Drexel, and a series of message and document design courses at the University of Minnesota. Such courses, obviously, comprise the core of any technical writing program. Slightly over one-half of the programs require computer science training, and fewer than one-half require training in audiovisuals or graphics. Only a few programs require experience in science or oral presentations. Many institutions find such coursework beyond their resources or beyond the expertise of their faculty. Other avenues, such as collaborative work, could provide this needed training.

Different Emphases Require Programs to Reach Out

Variations in emphases among the twenty-four programs point to two major types of technical communication programs. First, three programs emphasize proportionately training in communication and training in a technical area. For example, Bowling Green State's interdisciplinary Master of Arts degree in communication and in science/technology requires applicants to demonstrate preparation in such cognate areas as business, science, mathematics, or foreign language. The program at the Polytechnic Institute of New York requires one year of hard science and one semester of mathematics for admission, and Rensselaer requires competency in

(Bowling Green State, Carnegie Mellon, Colorado, East Carolina, Eastern Washington, Iowa State, Memphis State, New Mexico State, Northeastern, Oklahoma State, Pennsylvania State, Rensselaer, and Texas El Paso).

Nine of the programs offer a Master of Science degree (Boston, Colorado, Drexel, Eastern Washington, Miami, Michigan Tech, Minnesota, Polytechnic Institute of New York, and Rensselaer). Not all of these programs, however, require technical training. For example, the technical communication programs at Minnesota and Colorado offer the Master of Science degree, but course work falls almost exclusively in communication, though the programs offer work in many kinds of technical writing.

The other emphasis in technical communication programs focuses more intently on communication arts, with little, or only elective, work in technical fields. Most of the programs offer the Master of Arts degree, usually housed in Departments of English (or an equivalent department), though Boston offers its Master of Science degree through the Department of Journalism. These programs emphasize communication/rhetorical theory; language, literature, and linguistics; editing; research methods/bibliography; and extensive writing. Five institutions require foreign language competency unless a student substitutes computer science (Iowa State, Memphis State, Oklahoma State, Pennsylvania State, and Rensselaer). Such a variety of coursework would strain any program that attempts to train students in all of these areas.

Tasks Performed Suggest the need for Collaboration

Not only do the variety of coursework and different emphases in current programs suggest a need for collaborative experiences, but the variety of tasks performed by those who consider themselves technical communicators suggest that no single program, even under ideal circumstances, could include training that specifically addresses all of these tasks. As one example, an evaluation form used recently by the Practical Conference on Communication (sponsored by the East Tennessee Chapter of the Society for Technical Communication) includes forty-two services/activities for which technical communicators are or could be responsible. These include the usual activities and services that one would expect (composition, communications, computer documentation, data processing, editing, printing, publications management, publishing, typing, and writing). Yet the list also includes many services that may not be typically considered as first-line technical communication activities (advertising, cataloging, color separation, distribution and mailing, filing, film equipment media, library science, management consulting, photography and retouching, and programmed instruction). No program, of course, can train students in all these areas, but most programs can reach out to other departments and disciplines within and outside the university to establish collaborative learning opportunities between students in technical/scientific communication and students in other areas and between organizations that cannot offer specialized training and another which can provide it.

Reaching Out Through Internships

One of the ways technical communication programs reach out, of course, comes from internships in cooperation with other technical or scientific organizations. Sixteen of the programs surveyed by Trevathan and Barchilon require an internship or work experience. Three programs require internships if no work experience is presented (Colorado, Drexel, and Rensselaer). Three programs make internships available (Memphis State, Northeastern, and Pennsylvania State). MSU, for example, has placed students in the Scientific Publications Department at the University of Tennessee, Memphis; and Federal Express Corporation has hired three of our recent graduates who served internships there. One of these interns worked on a brochure throughout the complete production process--from revision and editing to layout and final production--providing him hands-on experience that he could not have gotten in the academic program. We also have our students working as editorial assistants on the two journals published by our department, the Memphis State Review and Arthurian Interpretations. These assistants not only practice copy editing which they learned in classwork, but also learn about the review process and communication with authors, on the one hand, and about document production and communication with layout and print personnel, on the other.

Reaching Out Through Classroom Learning Experiences

Training for our students comes from organizations outside the department which have personnel who supplement the expertise of our faculty. For example, in the six year history of the professional Writing Program at Memphis State University, we have not been able to provide training in visual communication, graphics, or illustration, fundamental activities of most technical communicators. To rectify this deficiency, our students in an article writing course collaborate with students in audiovisuals/graphics in the Department of Curriculum and instruction (College of Education). One project, for example, resulted in an instruction manual for the desktop publishing software available to students in Curriculum and Instruction.

A second example of collaboration with another institution assigns students in research methods/bibliography at MSU the task of compiling an annotated bibliography of articles on professional communication in various health science journals for the Department of Scientific Publications at the University of Tennessee, Memphis, one of the region's major biomedical research institutions.

A third collaborative opportunity uses students in the Department of English's article writing and technical editing courses and experts in publication layout and production to produce brochures advertising the Professional Writing Programs at Memphis State University, such as a brochure promoting the joint venture in "communication excellence" between Digital Corporation and the Professional Writing Programs. Although I'm speaking here of graduate students, we also involve undergraduates in the professional writing concentration in collaborative writing projects, such as producing final reports of laboratory projects in engineering.

Reaching Out Through External Advisory Boards

Finally, as one of our collaborative arrangments, the Professional Writing Programs at Memphis State University have established an external advisory board to bring added expertise to our programs. Members of the board serve as communication professionals at Baptist Memorial Hospital (the largest private hospital in the world); the University of Tennessee, Memphis, Department of Scientific Publications; the Memphis Light, Gas, and Water Division (one of the largest city-owned utilities in the nation); Federal Express Corporation (other than the post office, one of the largest package delivery systems in the world); Digital Equipment

Corporation; Dover Elevator Systems; NYNEX Business Centers; and representatives of a small general press and of a managment consultant firm, all of which have headquarters or major operations centers in Memphis. This collaboration strengthens our internship program and perhaps will expand it into summer internships for faculty to provide additional business, government, or industrial experience.

Also, members of the advisory board frequently lecture in our graduate seminars. The head of the Public Relations Department at Memphis Light, Gas, and Water, for example, lectured on document production and offered tours of his facilities where students encountered the full range of document production--word processing and editing, graphics, typography, and reproduction. Also, we are arranging with Federal Express (which is constructing a building to bring together all of its writing, editing, and document production activities) to provide additional hands-on experience for our students.

Conclusion

We believe that with these supplemental, external activities we give our students experiences that broaden their training. Without such opportunities, students would be left with training that, good as it may be, necessarily falls within the finite scope of our own faculty's expertise. And we would, because of that finite range, deprive our students of training that they can have if we exercise a little, simple creativity in seizing opportunities for collaborative learning. Through these activities, our students learn in the work place some simple realities that we teach them in the classroom, e.g., that writers in biomedical sciences, for example, use the CBE style guide, not the MLA. And they learn skills that extend their classroom training into the practical work-a-day world of technical communication.

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REACHING OUT WITH GRANT PROPOSALS:
LINKING CLASSROOM INSTRUCTION WITH PROGRAM DEVELOPMENT

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When I originally submitted my proposal to present a talk at the CPTSC conference, my state's legislature was meeting in special session, with the higher education budget yet to be decided, and my governor was insisting that the state's $6.5 billion dollar deficit could be made up by "belt tightening." (It took a second special session to convince the governor that there was in fact need for "revenue enhancements." Still, times are not exactly flush.) In this austere atmosphere, I prepared to begin my new responsibility as Coordinator of the Bachelor of Science in Professional Writing. Given these conditions, I asked myself, how can I help to build our fledgling degree program and assure the quality of education that our students receive?

A partial answer suggested suggested itself as I also prepared to teach a course on proposal writing, newly added to our curriculum. I knew that rather than working on academic exercises or case studies, I wanted class members to research and write real grant proposals on real projects. And so, it occurred to me, why not have at least some of those real projects help to build the resources of the Professional Writing degree program? The plan not only offers students experience in the intricacies of grantsmanship, it also provides them with documents for their portfolios and a line on their resumes, as it strengthens the existing degree program for themselves and for future students.

The success of the project depends on a network of collaboration, first within the community of the classroom, and then beyond in cooperation with larger communities in the university and the city.

First, then, within the classroom, I organized a social structure in which collaborative learning could take place, an alternative to the traditional classroom that allowed students to take over the authority for their own learning. I began the process by providing an assignment that allowed the class to transform itself from a group of individuals to a real working group with a shared body of knowledge. To this end, they prepared a brief handbook reviewing a stack of books from the college library, a kind of cross-section of the many "how to win grants" books available. Together they arrived at a series of questions they wanted each review to answer ["Does the book describe a process to follow in preparing grants?" "What kinds of grants are included?" "Does the book include sample proposals?" and so on], reviewed each other's drafts, agreed on a common layout, revised, and finally compiled and distributed to everyone in the class a compendium of the reviews. Sharing this body of knowledge, they were ready to put knowledge to work.

The remainder of the course was devoted to the actual writing of grant proposals. To provide students with the broadest range of experience, I divided the proposals into two units -- those directed to local corporations and private foundations and those directed to government agencies. This first unit is the one that bears most directly on linking program development with classroom practice. These are the grants that will directly serve our needs. For the latter unit, we served as volunteer grant writers for a social service agency in town that aids handicapped children. Having reached out to the community for financial support for our program, we reciprocated by sharing our expertise with an organization in need.

Grassroots Program Development

For devising the particular subject matter of the grants directed to local corporations and private foundations, I turned to the class itself. Given their experience in the program, they could provide real insight into our needs. Still, just in case, I tossed out one potential topic which, I must admit, I assumed would be a sure-fire winner. What if we sought to set up a fund to provide scholarships to professional writing majors, I suggested. With that germ, I divided them into two small groups and set them to brainstorming. They did much better than I did. Both groups shelved the scholarship idea and branched out on their own.

Building library resources. One of the groups, drawing on their experience in preparing the reviews of "how to" books for the course, rightly noted that our library has some serious gaps. As the price of oil per barrel dropped, so did the book buying-budget. Plugging holes in the library's basic collection takes precedence over, for example, updating editions of works we already hold. Practically speaking, that may mean my department orders newly available printings of early women novelists rather than, say, the third edition of Foundation Fundamentals. Ideally, of course, we should not have to make such decisions. The group's idea was to approach a wide range of local corporations and foundations, seeking a modest contribution from each to acquire books pertinent to the special interests of each.

The plan seems to have worked. Poring over various reference works and directories for a list of prospects, the group members narrowed the list, sorting probables from possibles, after combing newspaper accounts, vertical files, and annual reports for clues. Thus, when an associate with a major law firm in town was cited in the press recently for his concern with the writing skills of the firm's employees, the company made the list as a likely source for support in upgrading the library's collection on legal writing. They did similar groundwork for fundraising in medical writing, engineering, energy, computers, and so on. As a result, in addition to the valuable experience the group members have already acquired by the process they have followed, they may ultimately have the additional pleasure of using the books that they helped to buy.

Funding internships. The second group's idea is, I think, even better. Slower to focus on their goal than the other group, they first generated a wealth of good ideas, many of them not neatly suitable for grant-writing projects, but good ideas for the program nonetheless. I won't interrupt myself here to describe them, but I have captured a couple of them in commitments for directed studies courses next semester. Here's what they did settle on.

They sought to establish a fund to pay students for their work as writing and editing interns in campus departments and offices. Our rule of thumb for on-campus interns is working ten hours a week during the semester. At a reasonable $5.00 an hour, that works out to $750 per intern, not a princely but a significant sum. Rather than merely asking local corporations or foundations to sponsor scholarships for Professional Writing majors, as I had suggested, then, their plan provides much greater incentive. While helping to defray the educational costs of a writing student, a sponsor will simultaneously be providing work experience for the student and aid to various units of the university.

What pleases me most about the proposal is that I believe it will generate interest campus-wide in our interns. So far, our use of on-campus interns has been limited. Indeed, only the Office of University Relations has taken interns, one or two a semester. The reasons for the lack of internships are many. First, our program is young enough that only now are we at a point where a significant number of students are far enough along in their degree plans to be ready for internship credit. Before now, though, several qualified students ended up substituting additional courses for the internship credits. The reasons for their doing so were sound and varied. For one thing, as we offered a whole flock of new courses, we needed enrollment to allow them to make. Second, since some of our majors have no intention of working as writers, seeing the degree instead as a sensible preparation for further graduate or professional training, they could argue plausibly that additional courses made more sense for them than did an internship. And, perhaps most pertinent, a number of people pleaded hardship -- they needed to devote those blocks of time to paying jobs; the time for coursework could be cobbled out around their work hours. (The first internship I arranged for substantiated this reason: securely scheduled for twenty hours a week of paid work for one of the city's newspapers, one young man gleefully resigned his job as a waiter.)

Now, as increasing numbers of students reach advanced standing in their degree plans, I want them to serve as interns. Offering them paid positions shows them that we take the requirement seriously: indeed, students will be competing for these positions and, knowing that students will receive both course credit and a stipend for their internship hours, a department will rightfully expect real quality. Perhaps most important, paying students will accustom both sides to the notion that work as writers is valued.

Other Ways of Reaching Out

Obviously, asking people for money is one way of reaching out. But the course also drew on other resources. While students did research and worked on their proposals, we used class time in two ways, either as team meetings or workshops to report findings and review and evaluate work in progress or as a series of guest lectures. The lectures gave students a chance to talk with people from throughout the campus and the city who write or respond to proposals. For example, a theater professor described his successes (and a few of his failures) in receiving many modest grants from small local foundations, the director of the campus placement office described her large foundation grant for a project on cooperative education, and the director of support services for students with special needs regaled us with stories of the joys of surviving on government grants. We have also had a visit from an administrative assistant with an energy company who serves on the company's corporate gifts review committee and from another woman who directs the phone company's public service projects. These people allowed my students to share in a much richer blend of experience than I, of course, could give them -- and I saw their saavy grow. Besides providing information that helped them in the specific projects they were working on, our guests also demonstrated how writing functions within organizations.

This course on grant proposal writing, then, builds on a series of collaborations and cooperations that enhance classroom instruction while they develop and enrich the degree program. By designing collaborative projects for our students, we help them become team players and provide real experience in the relationship between written texts and the life of a project within a working community. Second, the grants themselves will provide money to allow the program to grow and strengthen (and may provide contacts that will lead to off-campus internships and potential jobs). Even though some of the grants we applied for did not come through, the class's projects identified some useful avenues for the degree program to pursue. And beyond such tangible rewards, we strengthened the program both on campus and in the community with those intangible rewards that come from visibility and good will.

ELECTRONIC DOCUMENTATION COMES OF AGE

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Introduction

In 1987, for the first time Northeastern University offered a course in "Electronic Documentation" as an elective for its Master's Degree program in Technical and Professional Writing. This course heralded not only a new level of growth and maturity for Northeastern's program, but it also reflected a significant development in the field of technical writing generally.

The "coming of age" of electronic documentation is characterized by a reaching out to academic disciplines and professional organizations traditionally not closely associated with the field of technical writing. I have written elsewhere about the teaching objectives and resources for Northeastern's course in "Electronic Documentation" [1]. Therefore, my focus here is on several conceptual and philosophical assumptions regarding electronic documentation. I also suggest a few potential areas of theoretical application which can result from the disciplinary cross-fertilization required to write effective electronic documentation. I believe that "reaching out" (the theme of our conference) is essential for building a foundation for this new direction in technical communication.

Definitions

What is "electronic" documentation? Although some writers prefer the term "online" to "electronic" [2], the latter is the more encompassing term. Electronic documentation covers all forms of user-oriented information presented through the medium of the computer. Indeed, there are already "genres" of such documentation evolving within industry. The following list represents a developing taxonomy of electronic documentation. This grouping of types of documentation may be viewed as moving from simple to increasingly complex forms of writing. Furthermore, the list is evolutionary in that each form of electronic documentation may include some of the forms listed prior to it.

A Taxonomy of Electronic Documentation

(1) System Messages are information, usually in very abbreviated form, which may occur during the operation of software packages, including status messages, prompts, menus, and warnings.

(2) Error Messages are information within software systems which indicates a problem situation which threatens the proper operation of the system or which identifies the fact that a given instruction cannot be executed by the system.

(3) HELP Facilities are directions embedded within software systems for solving problems which the user of the software may encounter with the software while operating it; they provide information and guidance to help identify the problem and its solution.

(4) Online Reference Guides are comprehensive compilations of information on a particular subject that are structured like dictionaries or encyclopedias and are accessed by various indexing schemes; they are organized for quick access.

(5) Software and Hardware Tutorials are sets of instructions consisting of step-by-step procedural information and generously illustrated with examples and graphics; their subject matter is oriented

to computer software and hardware.

(6) Computer-Based Training (CBT) is instruction on any subject matter which is delivered by a computer; it has been defined as "any time a person and a computer come together and one of them learns something." [3]. CBT may also include other media, such as audiotapes and videodisks, and it is always interactive.

This list will undoubtedly expand, as new technologies become available for electronic documentation. Although some of the items on this list are presently oriented exclusively toward the computer industry, Computer-Based Training (CBT) makes it possible to include their techniques in non-computer related subject matter. Not only will developing technologies expand the applications of this new approach to documentation, but the demands of industry will also have an impact on its future.

Reaching Out to Industry

The universe of technical documentation has changed immensely since the CPTSC annual meeting in 1985, when my Northeastern University colleague spoke of online documentation as merely condensing instructions "to little on-screen nuggets" [4]. These "little nuggets" have become a rich and expanding "mother lode" (to carry this analogy one step further). Online documentation is more than condensing what would normally have appeared on paper into on-screen messages. It is a growing specialty within technical writing which has its own genres, technical media, and writing techniques. Industry has created a demand for technical media, and writing techniques. Industry has created a demand for technical writers who are able to create electronic documentation.

Many of the companies which advertise positions for technical writers are asking for individuals capable of creating not only paper-based documentation, but also computer-based documentation. They are aware of the cost savings and the learning benefits of electronic documentation for their employees and clients.

Being involved with directing programs in technical and scientific communication, we must be continually alert to the potential industrial requirements faced by graduates from our programs. We must also track and analyze the new technologies for electronic documentation that are emerging from industry and attempt to incorporate them within the theoretical assumptions of our writing programs. This process must be supplemented by an understanding of a broad range of disciplines.

Reaching Out to Other Disciplines

Were I to identify one major characteristic of the theoretical foundation of electronic documentation, I would say that it is multidisciplinary. As Judith Ramey points out in her important articles on "Developing a Theoretical Base for On-Line Documentation":

> "A wide range of fields and disciplines can contribute ideas and research results to building a theory of on-line documentation. ... The most obvious sources of information are the parent fields of on-line documentation -- computer documentation and technical documentation, together with the related fields of graphics, typography, and book design. But we can also learn from rhetorical theory, communication theory, education, psychology, information science, linguistics, and computer science"[5].

The problem is not in identifying the fields related to electronic documentation; it is rather the question of where to begin, in view of the fact that there are so many related fields. The following disciplines currently appear to be the most fruitful sources of concepts and techniques for electronic documentation:

Computer Science -- As the medium for electronic documentation's message, computers are important partners in the resulting human and computer relationship. The field of Computer Science is deeply involved in various aspects of the "human-computer interface." Within this field, the specialties of artificial intelligence, database design, and human factors study all provide useful assumptions and practical techniques for electronic documentation.

Cognitive Science -- The past twenty-five years have seen the emergence of a scientific discipline focused on how the human mind works. As Morton Hunt, one of the "historians" of Cognitive Science, has remarked," ... in a mere handful of years, [we have] discovered more about how we human beings think than we had previously learned in all our time on earth" [6]. Issues of how the human mind receives information, organizes concepts, solves problems, and retains information (long- and short-term memory) are essential for creating electronic documentation. It is only by examining the process of thinking that one can begin to speculate on the possibilities for thinking with a computer.

Instructional Technology -- Technological developments have had a significant impact on instructional techniques. As a rather new field, Instructional Technology is concerned with the theoretical and practical implications of high-tech developments for instruction, including audio-visual systems, telecommunications, computer-aided instruction, intelligent CAI, and whatever other new developments emerge in educational equipment technology. As Robert Gagne, one of the founders of this field, proclaims:

> "It is a basic purpose of instructional technology to promote and aid the application of these known and validated procedures in the design and delivery of instruction. ... In line with this

> view, research efforts in instructional technology seek to investigate and verify the features of communications to human learners that optimize learning, and to discover how these features may best be planned and executed with the use of the various communication media and their combinations" [7].

Electronic documentation has much to assimilate from this interesting new field.

Software Psychology -- As another emerging field, Software Psychology is a cross-disciplinary approach that incorporates concepts from each of the previously mentioned disciplines. As Ben Shneiderman, one of the founders of this field, explains:

> "Software psychology is the study of human performance in using computer and information systems. Understanding of human skills and capacity to design effective computer systems can be improved by application of the techniques of experimental psychology; the analysis of cognitive and perceptual processes; the methods of social, personnel and industrial psychology; and the theories of psycholinguistics. Software psychology in a new 'way of knowing' which complements current research and development practice while emphasizing human values" [8].

The focus of this field on understanding the user makes the results of its research on essential area of theoretical study for electronic documentation.

An interesting aspect of these disciplines is that all of them are rather recent fields of study. Indeed, Cognitive Science, Instructional Technology, and Software Psychology are recent enough to make Computer Science (itself only in existence since the mid-twentieth century) seem like an "old" discipline. An important characteristic of all these disciplines is that they are in themselves multi-disciplinary, incorporating concepts and approaches from each other and from related disciplines. The challenges for electronic documentation are to incorporate the best ideas from all these "possible worlds."

Reaching Out to Professional Organizations

The richness of the theories and practices of other disciplines is made available through several professional organizations that are typically not frequented by technical communicators. The following is a partial list of helpful organizations:

Association for Computing Machinery (ACM) Special Interest Group on Computer-Human Interaction (SIGCHI) -- SIGCHI's scope encompasses all aspects of the computer-human interaction process, including research and development efforts leading to the design and evaluation of user interfaces. The focus of SIGCHI is on user behavior: how people communicate and interact with computer systems. It publishes the quarterly SIGCHI Bulletin, which serves as a forum for the exchange of ideas among computer scientists, human factors scientists, psychologists, social scientists, systems designers, and end users. [Contact: ACM, Inc., P.O. Box 12115, Church Street Station, New York, NY 10249.]

Association for the Development of Computer-Based Instructional Systems (ADCIS) -- The purpose of ADCIS is to advance the investigation and utilization of Computer-Based Instruction (CBI) and Computer-Managed Instruction (CMI). It also promotes and facilitates the interchange of information, programs, and materials among people of many different perspectives and careers, who share the common goal of excellence in instruction through the effective use of computer technology. ADCIS is composted of several different Special Interest Groups (SIGs), representing the gamut of hardware and software available in the field of instructional technology. It publishes the quarterly Journal of Computer-Based Instruction. [Contact: ADCIS International Headquarters, Miller Hall 409, Western Washington University, Bellingham, WA 98225.]

The Human Factors Society (HFS) -- The largest society in the international world of ergonomics, HFS is an inter-disciplinary professional society that fosters technical growth and career growth in human factors. It focuses on the professional exchange of information on scientific, engineering, business, and research developments in human factors in the United States. HFS's Communication Technical Group is concerned with all aspects of human and computer-based communications. The HFS journal, Human Factors, is published six times a year and includes the latest developments in the world of human factors and ergonomics. [Contact: HFS, Inc., P.O. Box 1369, Santa Monica, CA 90406.]

National Society for Performance and Instruction (NSPI) -- NSPI is a professional organization of practitioners, managers, and theorists who are involved in the application and advancement of performance technologies which are aimed at improving human performance. NSPI's journal, Performance & Instruction, is issued ten times a year, and it is dedicated to the advancement of performance science and technology. It publishes practical articles, theoretical and conceptual discussions, procedural models, research reports, case studies, and short essays on topics related to improving human performance. [Contact: NSPI, 1126 Sixteenth Street, N.W., Suite 102, Washington, DC 20036.]

All of the above professional organizations have their own annual conferences, published proceedings, and local chapters throughout the country. They are excellent sources of information for those involved with electronic documentation, and they provide professional arenas in which to assimilate, and perhaps even contribute to, the multi-disciplinary nature of this rapidly growing facet of technical writing.

Conclusion: Dispelling a Misconception

Some of my colleagues in technical communication believe that creating electronic documentation is not "true" writing, but rather "design." This distinction is reminiscent of discussions about the differences between the medium and the message.

As Marshall McLuhan informed us many years ago, "technology gradually creates a totally new human environment. Environments are not passive wrappings but active processes. ... Each new technology creates an environment that is itself regarded as corrupt and degrading. Yet the new one turns its predecessor into an art form" [9]. As a relatively new medium in which technical information may be communicated, electronic documentation will undoubtedly make an art form of the variety or written and oral media which it contains. In the meantime, we must not allow the newness and perceived complexity of the technology surrounding electronic documentation cloud the broader purposes of technical communication. Fears and doubts about the technological medium of electronic documentation will only hinder its messages from being communicated effectively.

Innovations and standards for electronic documentation are presently in the process of evolving. If technical communications professionals do not work on accomplishing this task, others from related disciplines will do it without us. We need to "reach out" on many levels to join with our colleagues across several other disciplines. Through our involvement with the theoretical aspects of technical communication, we are in an ideal position to assimilate and express the results of what must become a joint multi-disciplinary effort.

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DESKTOP PUBLISHING: THE WRITER'S EXPANDING ROLE

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All the buzz about desktop publishing calls to mind an old TV commercial for Starkist Tuna. An underwater scene showed how Starkist always picked the plain looking tuna and rejected a primping tuna named Charlie. Every commercial ended with the refrain: "Sorry, Charlie. Starkist doesn't want tuna with good taste; they want tuna that taste good."

Charlie's time has finally come. A company that sells fonts for desktop publishing explains in a brochure: "Type does more than just make words on paper. It expresses feelings, Moods. Thoughts. And your own good taste." Given desktop publishing's power to design pages, writers with a feel for what makes a good-looking page will be more prized than those with little design sense.

The idea of visually illiterate writers armed with desktop publishing software is sending shivers through parts of the professional communication community. Specialists trained in the subtle arts of typography, graphics, layout, and production are warning us--with a bit of an elitist air--how amateurs wielding desktop software and laser printers will assault our sense of aesthetics and bury us under piles of vulgar, unprofessional looking documents. After all, "The field of typographic design is hundreds of years old; it is naive to assume that an author untrained in the field will produce good results" (Biles 105).

But Steven Roth, Personal Publishing Managing Editor, speaks for the desktopers when he exalts:

> Our intimacy with the material we are working with--text, graphics, layout, design--is magnified multifold by the ability to (figuratively at least) lay our hands on it, and mold it interactively to fit our vision. We are wresting the power from the priests of typography. (6)

Aldus Corporation, who coined the phrase "desktop publishing," claims in promotional material, "It's [desktop publishing] so simple to learn that you don't need any publishing or graphics arts experience to get terrific results."

But Sandra Hogan, Aldus Training Manager, admits to desktop publishing's dark side, "We've given people license to create some very ugly documents" ("Aldus Corp." 75). And Suzanne Watzman, president of the design firm Watzman and Keys, explains that vendors "don't tell you about two key things. One, if you were never a designer, this won't help you. The other is that it's not so easy. You just don't plug it in and it works" (Krasnoff 41). Getting things to work can cause just as big a headache as design problems. But that's another story.

Our problem is caused by the way publishing programs have collapsed the traditional divisions between writers, editors, artists, and typographers. Tech writers and graphic artists, through give-and-take exchanges, can hope to reach some sort of enlightened compromise. With a desktop publishing user, the exchange is going on between hemispheres of the same brain. Without ground rules, dominance, rather than collaboration, will control.

In the 1985 CPTSC Proceedings, Ben and Marthalee Barton stress the importance of visual training:

> We technical communication instructors, too, typically privilege the written word and suffer from lack of visual training; nevertheless, and however uneasily, we feel an inescapable obligation to deal with the visuals abounding in scientific and technical texts. How well are we discharging this obligation--an obligation that will mount as we swiftly enter the computer era? A compelling question, for the proliferation of low-cost, easy-to-use graphics software on computers is increasingly placing graphics production in the hands of technical professionals rather than illustrators. Moreover, figurative modes of representation are increasingly needed by technical professionals to deal with the information explosion induced by the computer revolution. Thus, the ascendance of visual mode, coupled with the relative impoverishment of the visual faculty, is aggravating the pedagogical problem to crisis proportions. (139)

Now, students can not only compose graphics on the computer, but entire pages. We must teach them those page composition guidelines that they violate at their peril.

At Youngstown State University we received a state of Ohio Academic Challenge Grant to establish a Professional Communication Design & Production Center. The Center has all of the hardware and software necessary to do desktop publishing--including twenty terminals, a Postscript laser printer, a plotter, a scanner, graphics software, plus a supervisor trained in typography and design. We integrate the Center into our program through special lab sections taken concurrently with our basic technical communication course, other courses in our professional writing and editing sequence, and our internship program.

But students are getting into desktop publishing by other routes. I remember when a student handed in the first word processed paper I had seen. Last week saw another first as a student presented me with a "homegrown" desktop paper. With desktop publishing hardware and software prices dropping, desktop papers will enter our classrooms. And accompanying them will trail a host of design considerations whose complexity and subtlety will bewilder students and confuse instructors.

"Interesting," you muse, "but I can't see it happening here." Word processing programs, however, are starting to look more and more like desktop publishing software. Microsoft Word already supports a wide array of typefaces.

An ad for Wordstar 2000 Plus Release 3 has the headline: "Cross desktop publishing and word processing . . . and you get a whole new animal." This release "combines advanced word processing with the key features of desktop publishing, solidly integrated in one program." Word Perfect Version 5.0, with multiple-font WYSIWIG ability, will capture, import, and resize graphics.

And from the other direction, new publishing programs are looking more and more like word processing programs. For example, one reviewer describes the new PagePerfect as having "just the right combination of flexible page-layout features and word processing features to please most PC users" (Sussman 88). Desktop publishing, in one form or another, is here to stay and will affect what we teach and how we evaluate. It's one thing to deal with white space, underlining, bold, and caps. It's quite another to deal with a multitude of point sizes and fonts (a $99.00 software package will generate millions of different typefaces), border pattern styles, leading, kerning, multiple columns, and the position of graphics on facing pages.

When faced with student papers sporting a new generation of design flaws, frequently the overuse of "neat" features, impressionistic responses (e.g., "This just doesn't look right.") won't be enough. Neither will lists of useless minutiae (similar in form to: Never start a sentence with and.) or a few grand generalizations (similar to the favorite: Be concise.). First we need a working knowledge of fundamental design vocabulary. Then we need a set of basic design principles clearly grounded in the ways good design works.

Far be it form me to create "the" graphics standards manual, but I know you look for rabbits in rabbit holes. Here's a list of some areas to look into:

*Many of the fifteen books on desktop publishing listed in Books in Print have chapters on basic layout and design. Outside of this list, there are two other categories: standard reference works on design and publications put out by desktop software companies. In the former category, Jan White, in particular, has written some helpful books on design. (See Editing by Design: A Practical Guide to Effective Word and Picture Communication for Writers and Editors and On Graphics: Tips for Editors.) In the latter category, I recommend The Aldus Guide to Basic Design by Roger Parker. In addition, desktop user manuals often have valuable design tips and explanations.

*Three desktop publishing periodicals (Publish!, PC Publishing, and Personal Publishing) have features and/or columns on design.

*You might take a workshops/seminar on desktop publishing. But it's often hard to know if a training course will be worth it. Consequently, software companies have even set up authorized training centers as a way to help with screening. A spokesperson for Aldus says, "We like your trainers to offer value, not only providing training but also providing a sense of design techniques that can be used with our products" (Mace 49).

*Don't overlook your own art department faculty. Some have probably spent most of their lives studying design and typography. Besides providing direct support, they direct you to their favorite sources of design information.

Or, you do an end run around the whole problem. Experts in graphic design have created electronic templates for the graphically inexperienced. These canned formats let you drop figures, headlines, body copy, etc., into grid structures set up to produce the perfect "designer" or "copycat" (depending on your view) memo, proposal, newsletter, report. Completely atheoretical, they can, nevertheless, provide a quick fix until you learn enough to modify them or create your own.

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USING DESKTOP PUBLISHING IN AN ADVANCED WRITING CLASS

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A primary goal of all Technical Writing programs is to train students to produce documents for audiences who need them. Desktop publishing technology has added an exciting dimension to this task. At the University of Wisconsin-Stout we have joined the old task and new technology in a course entitled Technical Writing Practicum, an advanced undergraduate course. In this course students produce documents for clients by using desktop publishing. The new technology adds an interesting dimension to the task of training writers, but it also adds new concerns. For teachers interested in this new development, this article will describe the course, define desktop publishing, explain why we use desktop publishing, and briefly discuss some concerns related to using desktop publishing.

What is Technical Writing Practicum?

Technical Writing Practicum is a two-semester-credit course, the goal of which is to produce a document for a client. The documents usually are informational brochures, but could be any relatively short work, including information sheets and booklets. The brochures are "real world" writing, intended to inform audiences of a variety of services; many of the brochures receive statewide distribution. The clients, people in university or local government offices, have included departments like the University's Ethnic Services Center, Financial Aid Office, and Placement Office, and local agencies like the Office on Aging and a drug abuse center. I find clients by putting a notice in the campus newsletter at the start of each semester. To date, I have always had more requests than I could fill.

The course essentially has three components: design readability, the professional writing process, and desktop publishing. To learn readability, students study the principles outlined in Guidelines for Document Designers (ed. Daniel B. Felker, et al., American Institutes for Research, Washington, D.C., 1981). This book clearly and succinctly reviews principles for organizing text, writing sentences, designing pages, and using some types of visual aids. In addition to such traditional advice as use active voice, parallelism and short sentences, the text teachers students to use overviews, headings (especially question headings), lists of conditions, and page presentation devices such as white space, ragged right margins, and "up and down," not all caps, for emphasis. In short this text provides clear discussions of skills that many students have not learned nor considered.

In order to practice these skills, I have students rewrite passages. From the material that crosses my desk, I choose "chunky" memos and reports, those presented in long prose blocks. These candidates for revision include everything from notices that the phone company will raise rates to directives on how to record final grades. Using word processing, the students redesign pages, immediately seeing the effect of applying the principles.

The professional writing process, based on the one used in the Technical Operations Department of Cray Research, the supercomputer manufacturers, includes three steps: interviewing, drafting and reviewing, and publishing. At the initial interview, students probe clients to discover familiar items such as the audience and purpose of the document, and unfamiliar items such as a schedule of draft due dates, a budget, and a veto process. I require students to fill out a form that includes all these details and to send me and the client a memo of understanding explaining them.

Drafting and reviewing occur simultaneously. The drafts include text and layout drafts; the students write and rewrite text until the client accepts it, and then present layouts until the client accepts one. The review is the interaction between writer and client that produces the document that satisfies the client. Students must be willing to accept text revisions, even after the text is apparently finished. This process can tax the students because a client could have as many as 25 people who must read and approve the text and who can disagree about wording or the order of sections. Clients must feel that they can insist on changes that keep their statements within the law or that prevent administrative snarls like telling prospective students the wrong dates to arrive on campus. The give and take of this process develops the students' sense of being professionals because they learn that not just text but personal interaction create satisfactory final documents.

The publishing stage generally means producing camera-ready copy, though many times students take the document through the printing process, providing the client with several hundred or thousand copies. All students must use desktop publishing to prepare camera-ready copy. Students who produce the final printed versions also must deal with such concerns as paper type, ink color and printer's schedules.

The desktop publishing component of the course introduces students to Apple Macintosh Plus computers; Macwrite, a simple word processing system; and Aldus Pagemaker, a software program that allows the user to treat the computer screen as if it were a layout board. Our system includes three Mac Pluses with 800K external disk drives, a 20 Mb Apple hard disk, an Imagewriter dot matrix printer, and an Apple Laserwriter Plus printer. This system costs approximately $11,500, not including educational discounts which can range from 25% to 40%. I use Pagemaker and Macwrite because I had learned them before I started to teach the course; other programs are available, each with different strengths, weaknesses, and costs.

Since most "computer literate" students are "IBM-literate," they must learn to use Macintoshes. Beginning with Macwrite, students develop their facility revising the memos and reports mentioned earlier. After the students learn Macwrite, they execute a number of assignments using Pagemaker. These assignments include such things as duplicating a poster that I have made for a client on campus, and revising part of a document in order to present the same information in two or three different designs.

What is Desktop Publishing?

Desktop Publishing is a method of electronically composing the printed page. Sophisticated software, like Pagemaker, allows the user to lay out text and graphics on the computer screen, rather than on "non-repo" blue graph paper. After learning the system, the user can compose pages into columns of text, even of varying widths, with different type styles, and graphic effects such as shading and rules. Essential to desktop publishing is a laser printer which, unlike dot-matrix printers, prints the entire page simultaneously in near type-set quality, allowing students to create camera-ready copy. Usually the client can take the laser-printed copy directly to the printer who can use it as the type-set original. The laser printer, I should note, is not a cost-effective way to produce, say, 2000 brochures. While it could do that job, it is very slow compared to a regular printing press.

Why Use Desktop Publishing?

I introduced the desktop publishing component into the course for a number of reasons. Most important is that students learn all phases of a writing project. They learn to deal with a client, to write clear text, to design their writing, and to produce camera-ready copy. They see the text, in effect, as a presentation performance, consisting not only of the content--the words chosen--but of the form--the height, width and interrelationship of words. Further, since they must produce camera-ready copy, the students learn that a document is not just magically produced from a page of text. They wrestle with everything--page margins, column widths, balky machines, deadlines, word choices.

Using desktop publishing also gives me and the students more control and flexibility. Before we had desktop publishing, the whole camera-ready copy dimension of the course created tension and time delays. Because we actually pasted up pages, students were reluctant to accept the clients' requests for changes in wording or design because of the time- and money-consuming problems are mostly--but not completely--eliminated. Word changes in text are easy to perform; changes in design and layout are more difficult, but the student alone can perform them on the computer.

Using desktop publishing also enhances the English department's reputation. We are using some "cutting edge" technology, which appeals to our students. The English department appears current, up-to-date. Students are often surprised to find that they can learn this technology from up. In addition, the projects enhance our reputation with other professionals in the school. Many clients are delighted to find, and help with, this kind of "applied writing." Because they see writing as an important component of their own jobs, they are happy to assist students who are learning to see writing the same way.

What are the Concerns About Desktop Publishing?

Desktop publishing raises four concerns: developing credibility, learning concepts, troubleshooting, and balancing the sometimes conflicting goals of the course. To develop credibility the teacher must perform jobs from around campus. I try to produce a brochure a semester, plus posters and revisions of forms. Actually I do not find and shortage of jobs; once people realized that I would do such work, I have had a steady stream of requests. This activity in time-consuming, but forces me to practice all the skills that I require of my students. Like them I interview, draft, set veto processes, produce camera-ready copy, and see items through the printer. As a result of this activity I have developed a network of people who can help me when the inevitable problems arise.

The teacher must learn a number of design concepts, from vocabulary to visual. I have had to learn to describe the page and its components in correct terms--to name a few: gutter, leading, points, picas, widows, hyphenation, justification, kerning, reverse. I have also had to learn visual design--how to establish a format; how to achieve unity on a page; how to make a page "alive," not "flat"; how to arrange a page so that it is not cluttered.

The teacher must learn to troubleshoot computer programs and student minds. I have had to learn how the programs work, both the items explained in the manual and those that are not. I have also spent hours with programs to learn their quirks. It is not unusual to spend four hours to resolve a minor problem. The teacher must also learn to troubleshoot student minds. Often to correct a problem that develops while revising on the computer, I find I must make the student reconstruct the entire project, including initial conception, specific action and specific reasons for performing those actions. Sometimes I cannot change something as simple as the placement of larger type size heads on a page until I have entirely reconstructed the project.

Teachers of a writing course that uses desktop publishing must find a way to balance the conflicting goals of producing a document and learning the programs. It is easy to lose sight of the former for the latter. Learning the program is engaging, frustrating, and almost addictive. As the students practice, the hours pass swiftly and emotions focus on making the machine perform in a desired manner. Achieving mastery with a sophisticated program causes a kind of euphoria which, regrettably, turns students from the task of producing a clear final document. The teacher must constantly keep before the students the notion that the computer and its software are tools that writers use. Students must learn that their final goal is not to master the tools, but to use the tools for communication. Unfortunately no formula exists for developing this awareness, but the teacher must find a way to foster it.

Conclusion

The course has added an important dimension to our program. Students develop a much clearer awareness of what it means to write professionally. They come to see the writing process as a means to produce a document for a client who will use it in the "real world." Documents from the course have been used throughout the university, the local community, the State of Wisconsin, and the upper Midwest. Desktop publishing adds an important, attractive component to the course, making it an essential experience for students who wish to become professional writers.

Reading List

Bly, Robert. *Create the Perfect Sales Piece: A Do-It-Yourself Guide to Producing Brochures. Catalogues, Fliers, and Pamphlets*. New York: Wiley, 1986.

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A CAUTIONARY WORD ABOUT DESKTOP PUBLISHING

JUDITH KAUFMAN
DIRECTOR, TECHNICAL COMMUNICATIONS PROGRAM
EASTERN WASHINGTON UNIVERSITY

When we think of book publishing prior to Gutenberg's invention of movable type in 1440, most of us probably imagine a solitary scribe hunched over his quill and paper. But in our century publishing has generally been a collaborative activity involving several specialists--writer, editor, designer, typesetter, printer--with complementary skills and responsibilities. Modern desktop publishing technology offers the possibility that publishing may once again become a solitary activity. Today one person, equipped not with quill an paper but with a computer, a laser printer, and a sophisticated software package, can single-handedly write, edit, design, typeset, and print anything from a one-page flyer to a full-length book. Such an arrangement offers the individual the alluring prospect of full control over all phases of the publication process. Yet with full control comes full responsibility, perhaps over areas in which the individual has no expertise. A writer or editor with no background in graphic design is likely to produce an inferior brochure, no matter how sophisticated the software. Conversely, a designer with no writing or editing abilities will not magically acquire them from a word processing program. Furthermore, even when a person has the necessary expertise to perform a variety of publication tasks, placing full responsibility upon that individual may not be ideal, either for the person or for the product. Someone accustomed to working as part of a team may find the experience of solo publishing stressful. And someone attempting to write, edit, proof, and print the same copy may learn first-hand why experts in proofreading have cautioned writers against proofreading their own work and have advised editors not to follow a work through all stages of production. As Peggy Smith said in her "Proverbs for Proofreading": "Love is nearsighted," and "familiarity breeds content."1

In 1986 I had occasion to test the truth of Peggy Smith's proverbs and to experience the loneliness of the solitary publisher when I used Eastern Washington University's VAX 11/780 computer, MASS-11 software, and a Dataproducts LZR2665 laser printer to produce camera-ready copy for a 300-page book. After the secretarial staff had typed the manuscript into the computer system, I became essentially a one-person publication staff: copyediting and proofing the manuscript, inputting the resulting changes, setting page breaks, hyphenating words as necessary, preparing and typing the index, and finally collecting the finished copy from the laser printer and mailing it to the publisher. I felt as if I were performing a high wire act without a net. I missed the security of knowing that the manuscript would pass through other human hands and under other human eyes. Although I did not have to worry about some other person misinterpreting my instructions and inserting new errors, I did worry about becoming so familiar with the manuscript that I would fail to catch errors I myself had made.

Theoretically, I should have been able to depend upon computer software to catch any errors I had overlooked. Spelling checkers are designed for this purpose. But many spelling checkers, including the one

I was using, cannot conveniently handle long technical documents because they stop at every unrecognized word and ask the editor for instructions. They can, of course, be instructed to accept the word on this and future occasions, but teaching the computer a large technical vocabulary can be time-consuming. Furthermore, spelling checkers do not catch typos that result in acceptable but inappropriate words, such as "or" for "of." Nor do they catch the inadvertent deletions that can result during on-line editing. I therefore resorted to proofing the document the "old-fashioned way": I viewed it.

I was similarly unable to take full advantage of the computer's indexing software. MASS-11 can prepare an index "automatically," but only after the user identifies the key words and then inputs a complex code on every page on which each of the key words appears. After twice crashing the system while attempting to use the "automatic" indexer, I settled for a semi-automatic technique: I used the word processing program's "search" function to find repeated instances of the key words and then typed the resulting list into the computer by hand.

MASS-11, while an excellent, full-featured word processor, lacks the capability of much modern desktop publishing software to combine text and graphics. Nor did my book editing project require such software. I thus cannot speak from personal experience of the problems that users of such programs may encounter. However, Steve Simmons, a colleague of mine in Eastern Washington University's departments of mathematics and computer science, has experienced these problems first-hand and has arrived at an admirable solution. Professor Simmons began by using a desktop system to design and print the menus for a restaurant he co-owns, but he quickly discovered that no amount of graphics software can produce a good design without the intervention of a good designer. He now types the menu content into a computer and gives the disk containing the menu to a professional designer. The designer uses desktop software to produce a draft design on a laser printer. After the design has been approved, the resulting disk is given to a professional printer, who produces the final menu copy on a linotronic printer, a sophisticated piece of equipment that uses laser technology but produces a better-quality product.

The process adopted by Professor Simmons, which he calls "electronic publishing,"2 is in some ways the opposite of desktop publishing, although it uses essentially the same technology. Desktop publishing has been marketed on the promise that the user will be able to produce a professional-quality document without having to employ the services of professional designers and printers. As discussed above, desktop publishing uses electronic hardware and software to convert publishing from a collaborative enterprise to a solo act. Electronic publishing makes use of desktop technology but leaves the design and print functions in the hands of qualified professionals. In so doing electronic publishing restores the collaborative balance among writers, editors, designers, and printers, allowing them to use modern hardware and software not to usurp one another's functions but to enhance their own abilities to perform their specialized tasks. Electronic publishing thus offers the publishing world a way to reach out to the future by building upon the collaborative experiences of the recent past, not by modernizing the image of the medieval scribe alone with his tools.3

NOTES

1. The Editorial Eye, #27, May 1979; reprinted in Stet! Tricks of the Trade for Writers and Editors, ed. Bruce O. Boston (Alexandria, VA: Editorial Experts, Inc., 1986), 233.

2. For details on the "electronic publishing" process, I have consulted an unpublished manuscript by Valerie Clausen entitled "Desktop Publishing Has Followers in Spokane."

3. For the imagery of the medieval scribe, I am indebted to my colleague, Pamela D. Elkind, of Eastern Washington University's department of sociology.

ELECTRONIC BULLETIN BOARDS:
THEIR BENEFITS TO ACADEMIA

SHERRY SOUTHARD
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OKLAHOMA STATE UNIVERSITY

As communicating via computers becomes a reality, technical communicators in academic environments need to be aware of the services offered by the Society for Technical Communication's electronic Bulletin Board [1]. In fact, the benefits offered by these services are often enough to convince departmental and university administrators to invest in the equipment needed; if a department already has basic computer equipment, the only additional purchases required are a modem and communications software [2].

The information I am presenting obviously is not new to many members of The Council for Programs in Technical and Scientific Communication (CPTSC). However, a major purpose of my presentation at the 1987 Annual CPTSC Conference in Orlando, Florida, and of this paper is to urge our membership to take advantage of all the services offered by the Society for Technical Communication (STC) electronic Bulletin Board. At this time, CPTSC doesn't have the resources, financial or hardware, to have our own electronic bulletin board. (And with the STC electronic Bulletin Board in operation, might it not be wiser to cooperate with STC, rather than duplicate what STC is already offering?)

By using the Bulletin Board, members of CPTSC can increase their effectiveness as directors and teachers, researchers, and members of professional organizations. The Bulletin Board offers help in completing work-related tasks and exchanging ideas through some of the services currently offered (a job listing service, the names of STC chapter employment committee managers, bibliographical data bases, various free download files, and a message exchange service) and services to be offered (an internship listing service, an easily up-dated form for the STC/CPTSC listing of schools having academic programs in technical communication, additional data bases not limited to bibliographical ones, and a forum for exchange of ideas).

Perhaps the two most useful services to CPTSC members in terms of meeting student needs are the job listing and internship listing services.

The Bulletin Board already provides a **job listing service**, a source of information about jobs available and positions being sought in almost all areas of technical writing. At this point, the information usually concerns the corporate world; there is rarely information about positions in academics. In addition, because many employers and job applicants are not aware of the service, it is not being used as fully as it might be. However, it supplies a good beginning for students searching for full-time employment upon graduation.

In helping students find employment, besides the job listing service, those having access to the Bulletin Board can obtain a list of the **STC chapter employment committee managers** -- persons who can provide additional job leads for their area of the United States.

In preparation is a **service for listing interns and internships** across the United States and Canada. The words "intern" and "internship" are being used in a very broad sense to include persons and job opportunities in work-study programs, co-op programs, etc. Guidelines for this service have been approved by the STC Board and others involved, and the service should be in operation by May of 1988. The internship listing service could be a valuable resource for faculty in technical and scientific communication programs. Sometimes these programs are at colleges and universities located in geographical areas where there are not many opportunities for internships, while others find they are in areas where there is an overabundance of internships. Such a service would increase the number of students able to complete internships; thus, students could gain needed hands-on experience and the corporate world could profit from the up-to-date theoretical and empirical research students learn in the classroom.

Having directed an internship program for over six years and having helped our technical communication students find jobs as practitioners, I am convinced that the job listing and internship listing can become indispensable resources.

STC and CPTSC's information about **schools offering academic programs in technical communication** is being placed on line: Academic Programs in Technical Communication by Patrick M. Kelley, Roger E. Masse, Thomas E. Pearsall, and Frances J. Sullivan, A Cooperative Effort by the Society for Technical Communication and the Council for Programs in Technical and Scientific Communication (Washington: STC, 1985). With an electronic data base, the directory can be constantly kept up-to-date, an impossible task with hard copy. However, such a source will not replace hard copy for a while since all who need the information don't have the means to access the system.

Another useful service provides **bibliographical data bases.** Users currently can conduct an online search of a bibliography of all articles printed in Technical Communication (1978 to present), looking for a key word or words such as author's last name, word(s) in the title, subject name, or word(s) in the article abstract. At present, being compiled for the Bulletin Board is a bibliography of scientific/technical theses and dissertations. Why not bibliographical data bases for other journals and proceedings important in our field?

The STC Bulletin Board is a source of **download files**, free except for the cost of downloading: for example, some of the files listed in January 1988 are the complete Technical Communication Index (1977 [sic] to present), several readability and stylistic programs, a list of area codes and correlating locations, and a stock management program.

With the Bulletin Board, users can interact more easily and quickly concerning matters related to academics and professional organizations. Because they can access a **message exchange service** through the Bulletin Board 24 hours a day, they are not restricted by the teaching schedule and office hours of another user. Although such interaction may not be as personal or offer as direct interaction as a telephone call, it can be more convenient and efficient. It is just as personal as writing letters and, certainly, can be faster than mail.

The Bulletin Board could also be used to initiate dialogue about relevant topics. For example, it could provide a **forum for the exchange of ideas** about articles published in journals -- an instant exchange that letters to the editor don't provide and that readers often don't have the time to write.

Personally, I would like to see more interaction among professional organizations such as CPTSC, STC, and Association of Teachers of Technical Writing (ATTW). Each one fulfills a definite need in the field of technical and scientific communication, and I certainly do not advocate merging into one giant organization. However, there are many ways members can benefit from increased cooperation among these groups. As academic leaders in our field, CPTSC members especially are in a position to foster this interaction. The STC Bulletin Board is one way for them to increase contact with other professionals, both in and out of academics.

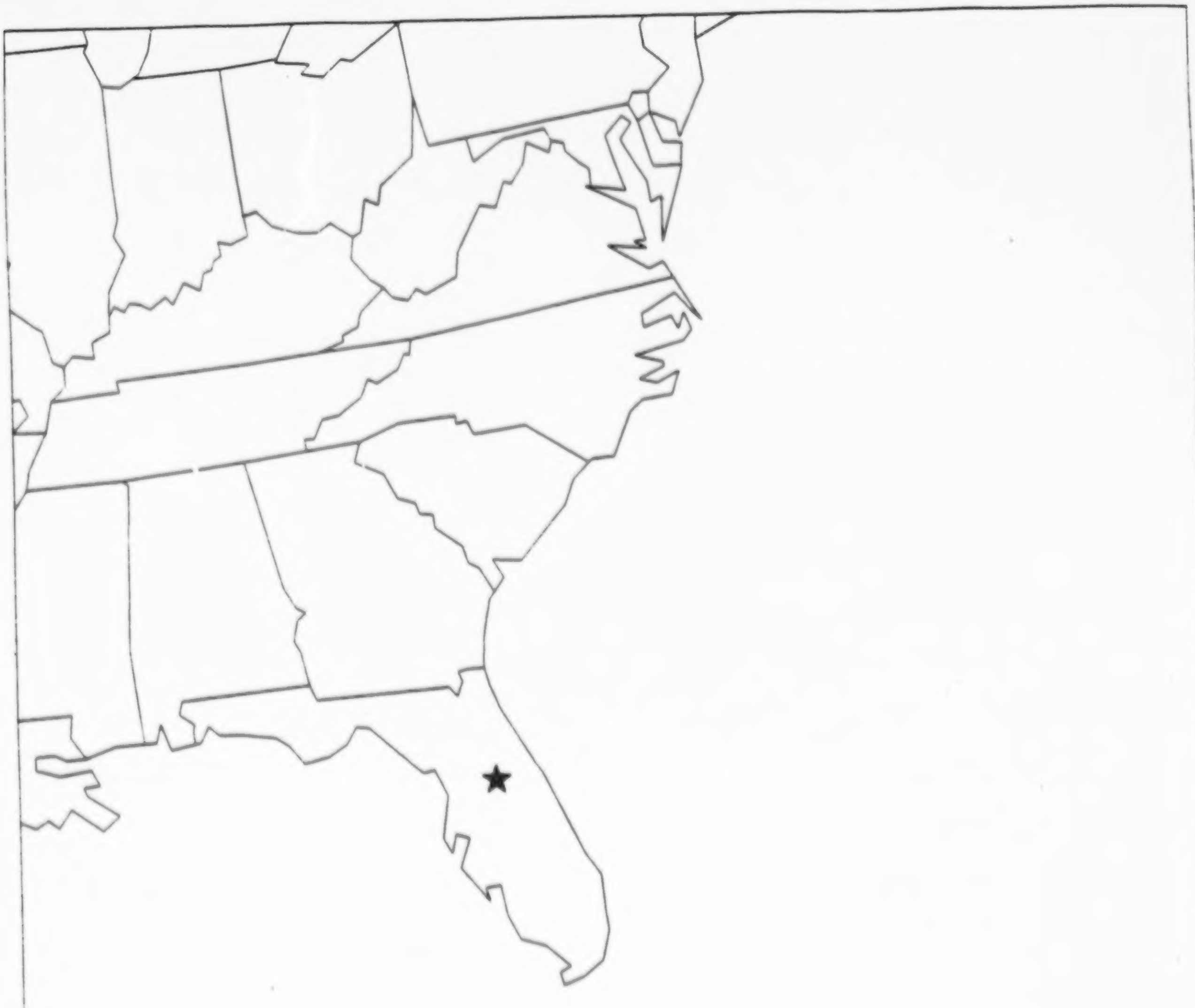
As CPTSC members face the future, they can and should use new technologies such as the STC Electronic Bulletin Board to their benefit as teachers of and researchers in scientific and technical communication.

Notes

1. The STC electronic Bulletin Board System began operation about May 1986. Carlton C. Miller describes the Bulletin Board in "The Electronic Bulletin Board: Easy Access to Timely Information" (Intercom, the Society's newsletter, May 1987, pp. 4-5). To access the Bulletin Board, users need a computer system (the hardware), communications program (the software), and a modem that connects the computer to a telephone line (more hardware).

For additional information, contact me or William C. Stolgitis, Executive Director, Society for Technical Communication, Headquarters, 815 15th Street NW, Washington, DC 20005.

2. As of January 1988, modems can be purchased for less than $100 although ones costing between $300 and $400 would probably be better choices. Two popular communications programs used at this time are Crosstalk, for many the communications standard (retails for approximately $100 to $160), and Pro-Comm, a shareware program (approximately $25.00).



Annual Business Meeting

MINUTES
14TH ANNUAL MEETING
CPTSC
OCTOBER 9TH, 1987
ORLANDO, FLORIDA

The meeting was called to order at 8:30 A.M. by Marilyn Samuels, President. Ms. Samuels thanked Gloria Jaffe for hosting the conference. She also offered a toast to Beekman Cottrell, the longest attending member, and to Henrietta Shirk as a representative of the newest members.

Ms. Samuels discussed the future of CPTSC:

Involving new programs and new people in the field, in CPTSC.

Researching philosophy and techniques in programs.

Collecting and evaluating data from all programs on students, teachers, and curriculum in order to document similarities and differences as a basis for future planning.

Agenda

Secretary's report:

Carol Lipson moved to suspend the reading of the 1986 minutes; seconded by Billie Wahlstrom.

Treasurer's report:

Andrea Walter presented the attached financial report, accepted by acclamation.

Old Business:

Proceedings

Sam Geonetta, vice president, announced that the 1986 Proceedings should be in the mail by November 1, 1987. If non-members want copies, they can get them for $12.00. The call for manuscripts for 1987 Proceedings will be sent out soon with a February deadline for submission.

TWT Survey

Marilyn Samuels reported that the survey on teachers of technical writing in four year institutions is being undertaken by Don Zimmerman, Don Cunningham, and Marilyn Samuels. The results will be coordinated with those of the survey conducted by Nell Ann Pickett and Faye Angelo on teachers of technical writing in two year institutions.

Voting Procedures

Sam Geonetta, acting as parliamentarian, presented a point of information on voting procedures, (not just elections). The Executive Committee has determined that the Constitution dictates that members present at the business meeting have voting privileges.

Amendments to the Constitution must be proposed and received by the membership 60 days before the annual meeting.

Membership

Andrea Walter is producing an up-to-date membership list and separate mailing list. At present, membership is by individual, not by institution. Membership dues are to be separated from registration at annual conference. Notices should be sent out at the beginning of the year.

Meeting Dates

The 1988 meeting will take place in the third week of October. We will discuss future meeting dates at that time.

New Business

Location of 1988 Meeting

Laurie Hayes invited CPTSC to the University of Minnesota for the 1988 Annual Meeting, as a tribute to Tom Pearsall, the founder of CPTSC, who will be retiring. Sam Geonetta seconded the motion which was approved by acclamation. Tenative dates are October 19, 20, and 21.

Andrea Walter proposed Rochester N.Y. for 1989; Sam Geonetta seconded the motion. Approved by acclamation. Sherry Little suggested San Diego State for 1990.

Format of 1988 meeting

The 1988 meeting of CPTSC will be devoted to special interests of these types of programs:

AA degree
certificate
service
undergraduate
graduate.

The Executive committee will determine the format. Early notice of the format and content need will be sent to the membership.

Past Presidents' Advisory Board

Immediate past president, Patrick Kelley, read a memo he proposed be sent to all past presidents of CPTSC concerning the establishment of an advisory board for evaluation of programs. Sam Geonetta proposed a standing committee of past presidents, who, with the advice and consent of the Executive Committee, would be responsible for coordinating evaluation, upon request, of proposed, new, and established programs in technical and scientific communication.

Newsletter

Gloria Jaffe proposed that a CPTSC newsletter be sent out twice a year: one issue following the annual meeting, and the second issue in the spring with contributions from the membership. Since the University of Central Florida has an independent study in producing newsletters. The responsibility will rest with UCF. Accepted by acclamation.

Special Issue of TWT

The Fall 1989 issue of The Technical Writing Teacher will be devoted to CPTSC. Marilyn Samuels, editor for this special issue asked that any proposed articles be submitted by summer of 1988.

CCCC

Don Cunningham asked for volunteers to staff a CPTSC table at the 1988 CCCC convention in St. Louis in March.

The meeting was adjourned at 10:15.

Respectfully submitted,
Gloria Jaffe, Secretary

CPTSC
Financial Report
December 31, 1987

Credits

Balance brought forward on 6/27/86	$4252.69
Memberships	
1986-new: 1; renewal: 2	960.00
1987-renewal: 4	60.00
Orlando meeting	1099.50
Sale of Proceedings	72.00
Interest (6/27/86-12/31/87)	279.59
Subtotal-credits	$6723.78

Debits

Checks	$ 7.50
Stationary/brochures/mailing	146.78
Proceedings 1985	
Production and distribution	1521.93
Proceedings 1986	
Production and distribution	728.74
Expenditures for 1987 meeting	1896.34
Subtotal-debits	4301.29
Balance-12/31/87	$2422.49

Respectufull submitted,
Andrea C. Walter
Treasurer

Appendices

APPENDIX A: CONSTITUTION

(As Amended 1981)

ARTICLE I
NAME:

The name of the organization shall be Council for Programs in Technical and Scientific Communication.

ARTICLE II
PURPOSE:

The primary purposes of the organization shall be to (1) promote programs in technical and scientific communication, (2) promote research in technical and scientific communication, (3) develop opportunities for the exchange of ideas and information concerning programs, research, and career opportunities, (4) assist in the development of new programs in technical and scientific communication, and (5) promote exchange of information between this organization and interested parties. Said organization is organized exclusively for educational purposes.

ARTICLE III
MEMBERSHIP:

Membership shall be open to any individual or institution interested in supporting the purposes identified in Article II. Individuals or institutions whose primary responsibilities or functions are education shall be designated Regular Voting Members. Others shall be designated Special Non-Voting Members. Membership shall be open to any person without regard for race, age, sex, or religious affiliation.

ARTICLE IV
OFFICERS:

The officers of the organization shall be president, vice-president, secretary, and treasurer, each to be elected for a two-year term.

The duties of the officers shall be:

President:
1) preside at the annual national convention of the organization.
2) represent the organization at official functions.
3) serve as chairman of the executive committee.

Vice President:
1) perform all the duties of the president in the event of the president's absence.

Secretary: 1) maintain all records of the organization including matters of correspondence.

Treasurer: 1) handle all financial matters of the organization including the receiving and recording of dues and payments and paying the bills of the organization.
2) maintain an up-to-date membership list.

The president, vice president, secretary, and treasurer, plus the immediate past president and one member-at-large, elected by the membership, shall serve as an executive committee. The executive committee shall have the right to act on the behalf of the organization at such times as the organization is not meeting in full assembly except to change the constitution or carry out elections.

ARTICLE V LIMITS:

No part of the net earning of the organization shall inure to the benefit of, or be distributable to its members, trustees, officers, or other private persons, except that the organization shall be authorized and empowered to pay reasonable compensation for services rendered and to make payments and distributions in furtherance of the purposes set forth in Article III hereof. No substantial part of the activities of the organization shall be the carrying out of propaganda, or otherwise attempting to influence legislation, and the organization shall not participate in, or intervene in (including the publishing or distribution of statements) any political campaign on behalf of any candidate for public office. Notwithstanding any other provision of these articles, the organization shall not carry on any other activities not permitted to be carried on (a) by a corporation exempt from Federal income tax under section 501 (c) (3) of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States Internal Revenue Law) or (b) by a corporation, contributions to which are deductible under section 170 (c) (2) of the Internal Revenue Code of 1954 (or corresponding provision of any future United States Internal Revenue Law).

ARTICLE VI
MEETINGS:

The organization shall meet in full convention annually. The location of the annual meeting shall be determined by vote of assembly at the preceding convention. The approximate date of the meeting shall also be established.

Special meetings of the organization may be held at need as determined by the executive committee.

ARTICLE VII
FINANCES:

The dues for the organization shall be $15.00 per year for Regular Voting Members and $50.00 for Special Non-Voting Members. All dues are payable prior to or upon registration at the annual meeting.

ARTICLE VIII
ELECTIONS:

The election of officers and members-at-large to the executive committee shall be held at the annual meeting. The existing executive committee shall each year nominate a slate of officers and a member-at-large and have this slate in the hands of the membership 30 days before the annual meeting. Nominations will also be allowed from the floor at the annual meeting. Elections shall be by written ballot.

ARTICLE IX
CONSTITUTIONAL AMENDMENT:

This constitution shall be amendable by a two-thirds vote of the assembly present and voting at the annual meeting. Proposed amendments to the constitution must be in the hands of the members at least two months in advance of the annual meeting at which the vote is to be taken.

ARTICLE X
DISSOLUTION:

Upon the dissolution of the organization, the Board of Directors shall, after paying or making provision for the payment of all of the liabilities of the organization, dispose of all of the assets of the organization exclusively for the purposes of the organization in such manner, or to such organization or organizations organized and operated exclusively for charitable, educational, religious, or scientific purposes as shall at the time qualify as an exempt organization or organizations under section 501 (c) (3) of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States Internal Revenue Law), as the Board of Directors shall determine. Any such assets not so disposed of shall be disposed of by the Court of Common Pleas of the county in which the prin-

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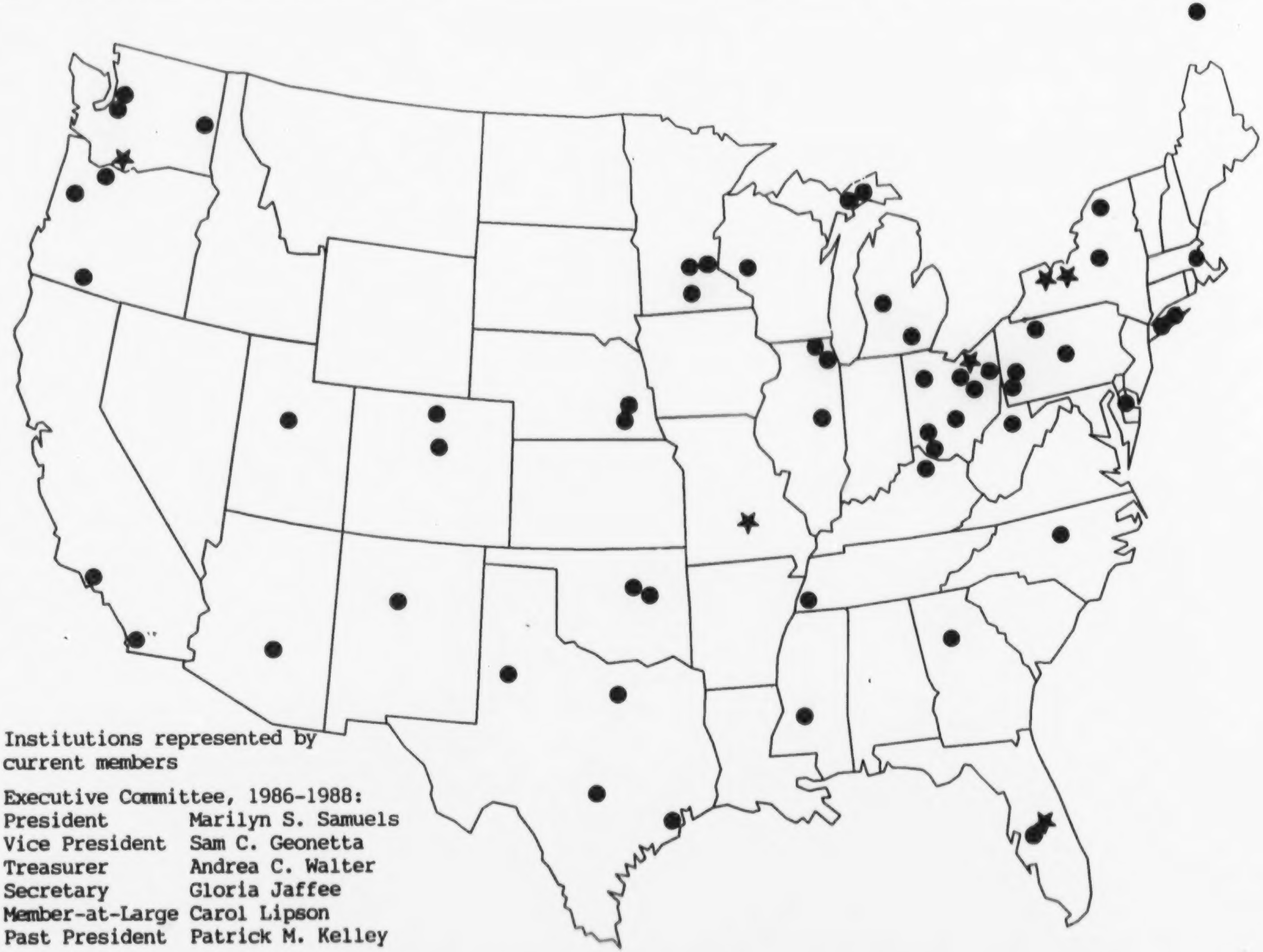
cipal office of the corporation is then located, exclusively for such purposes or to such organization or organizations, as said Court shall determine, which are organized and operated exclusively for such purposes.

ARTICLE XI
PARLIAMENTARY
AUTHORITY:

All official meetings, of the organization, shall be conducted according to the Standard Code of Parliamentary Procedure by Alice B. Sturgis. The presiding officer shall appoint a parliamentarian to advise the assembly at each annual meeting.

Appendix B: Annual Meetings, Sites, and Dates

1st	University of Minnesota	St. Paul, MN	1974
2nd	Boston University	Boston, Ma	1975
3rd	Colorado State University	Fort Collins, CO	1976
4th	University of Minnesota	St. Paul, MN	1977
5th	Rensselaer Polytechnic Institute	Troy, NY	1978
6th	Oklahoma State University	Stillwater, OK	1979
7th	University of Central Florida	Orlando, FL	1980
8th	University of Washington	Seattle, WA	1981
9th	Carnegie-Mellon University	Pittsburgh, PA	1982
10th	University of Nebraska	Lincoln, NE	1983
11th	La Fonda	Santa Fe, NM	1984
12th	Miami University	Oxford, OH	1985
13th	Clark Community College	Portland, OR/ Vancouver, WA	1986
14th	University of Central Florida	Orlando, FL	1987
15th	University of Minnesota	St. Paul, MN	1988



Institutions represented by current members

Executive Committee, 1986-1988:

President	Marilyn S. Samuels
Vice President	Sam C. Geonetta
Treasurer	Andrea C. Walter
Secretary	Gloria Jaffee
Member-at-Large	Carol Lipson
Past President	Patrick M. Kelley

APPENDIX C: Executive Committee and Institutions Represented by Current Members

Appendix D: Members in 1987

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Appendix E: ERIC Document Numbers for Past *Proceedings* of the CPTSC

Proceedings 1974 ED 252 864

Proceedings 1975 ED 132 630

Proceedings 1976 No Proceedings

Proceedings 1977 ED 252 865

Proceedings 1978 ED 252 866

Proceedings 1979 ED 252 867

Proceedings 1980 ED 252 868

Proceedings 1981 ED 252 869

Proceedings 1982 ED 252 870

Proceedings 1983 ED 252 871

Proceedings 1984 ED 252 872